

**SAN JOAQUIN COUNTY
CHILDREN & FAMILIES
COMMISSION**



**SHARED DECISION SUPPORT SYSTEM
FEASIBILITY STUDY**

*Final
Shared Decision Support System
Feasibility Study Report*

January 21, 2003



January 21, 2003

Ms. Lani Schiff- Ross
Children and Families Program Coordinator
222 East Weber Avenue
Room 678
Stockton, CA 95202

Dear Ms. Schiff-Ross:

Visionary Integration Professionals, Inc. (VIP) is pleased to provide the final Shared Decision Support System Feasibility Report. This report represents the final deliverable for the Shared Decision Support System Feasibility project.

We appreciate the participation, assistance and support we have received from the San Joaquin Children and Families Commission and the children and family agencies of San Joaquin County, throughout this effort and look forward to working with you on future efforts.

Sincerely,
Visionary Integration Professionals, Inc.

A handwritten signature in blue ink, appearing to read "Michele Blanc", is written over a light blue horizontal line.

Michele Blanc
Director, State and Local Government Services

Shared Decision Support System Final Feasibility Study Report Table of Contents

Executive Summary	
1.0 Introduction	1-i
2.0 Baseline Analysis	2-1
Agency Profiles	2-2
Technology Profiles	2-6
Readiness Assessment.....	2-8
Stakeholder Representation.....	2-8
Clarity of Concept	2-13
Level of Interest in Developing and Participating in a Shared System.....	2-14
Capacity to Support System Development and Implementation	2-15
Summary of Findings	2-17
3.0 Requirements.....	3-1
Opportunity Analysis	3-1
Goals, Objectives and Anticipated Benefits.....	3-2
Shared Decision Support System Conceptual Model	3-3
General Requirements	3-8
4.0 Recommendations	4-1
Alternative Examples	4-1
Lessons Learned from These Initiatives.....	4-2
Recommended Overall Approach	4-3
5.0 Implementation Recommendations.....	5-1
Implementation Approaches	5-1
Implementation Considerations.....	5-4
Implementation Plan	5-6
Level of Effort Estimates	5-9
Appendix A	
Agency Profiles.....	A-1
Technology Profiles	A-16
Appendix B – Confidentiality Summary	
Appendix C – Potential Solution Architectures	
Recommended Technical Approach	
Preliminary Conceptual Data Model	

EXECUTIVE SUMMARY

Changing demographics, increasing public scrutiny, the current economic environment, and advances in technology are combining to create higher demands on public programs across the nation for quality, responsiveness and timeliness – without additional resources.

The San Joaquin County Children and Families Commission (the Commission), a.k.a. First Five San Joaquin, in responding to these pressures, believes that the comprehensive needs of San Joaquin County’s children and families could be better addressed through improved coordination of resources and increased integration of services. The Commission – charged with the responsibility of enhancing the quality of life for children and families in San Joaquin County – recognizes that today’s computer technology provides the opportunity to enhance communication between providers, facilitate information sharing and improve coordination of services.

Given their desire to improve the coordination of services to children and families and the availability of technology to achieve this goal, the Commission envisions the implementation of a Shared Decision Support System for San Joaquin County. Such a system would allow agencies to electronically share information to improve access to resources, increase coordination of services and facilitate joint planning for children and families.

Recognizing the strategic role of a shared decision support system, the Commission has undertaken a feasibility study, documented in this report, to explore the viability of implementing a shared decision support system. Specifically, the Commission has undertaken this feasibility study to (1) conduct an evaluation of business requirements and capabilities, and (2) develop a future solution strategy for implementing a Shared Decision Support System. This Executive Summary summarizes the feasibility study documented in this report.

BACKGROUND

The shared decision support system envisioned by the Commission would connect and support the existing programs and services for children and families in San Joaquin County. The existing programs provide an array of resources, services and interventions that support the health, safety and financial well-being of families and foster the development of children. Programs are delivered across a broad spectrum of health care, cash assistance, education, child welfare, child protective services, justice, early childhood and prenatal programs.

The children and family agencies of San Joaquin County create and maintain tremendous amounts of information in legacy systems, stand-alone applications and paper files and records. Every day, these agencies create much data about all aspects of their programs, services, clients and operations. For the most part, this data is collected, held, managed

and protected by individual programs and agencies. Data sharing is limited and data duplication across the various systems, is the rule, not the exception. Each occurrence of data tends to serve a different purpose, is generally stored in a different system within a program or agency, and requires different resources, support and administration to manage and utilize.

The Commission and its partner agencies desire to go beyond capturing, processing and maintaining their data to meet mandated requirements – ***they are looking to meaningfully collect, share and analyze their data to draw upon service and program knowledge and insight.***

What if the Commission and its partner agencies could do the following:

- › · Use the information already captured and maintained by the children and family agencies of San Joaquin County
- › · Meet privacy, confidentiality and security requirements and expectations
- › · Use existing databases and data sources
- › · Share information across agency and organizational boundaries to support decision making needs

The Commission and its partner agencies might be able to:

- › · Improve access to available program and service resources
- › · Provide broader knowledge of a family's needs by combining data in multiple sources to establish a more complete view of a client, or service delivery capability, outcome or capability
- › · Determine eligibility for multiple programs
- › · Provide a common library of evaluation modules to access data compiled from many separate databases
- › · Enroll clients in multiple programs
- › · Coordinate service delivery
- › · Conduct multi disciplinary treatment planning
- › · Reduce duplication of service delivery and identify program gaps
- › · Utilize Geographic Information System (GIS) mapping in support of management analysis

Families frequently receive services from multiple programs and are often required to apply for each service separately. Participation in multiple programs creates challenges for the recipient family and the service delivery system. Designing and implementing a cohesive set of services that effectively address the family as a whole are difficult. The difficulty is often exacerbated by program and agency boundaries that separate services,

create barriers to coherent services, and challenge the ability of service providers to communicate and coordinate services for a shared child or family.

Consider a client of the County from whom data has been accumulated in several programs (Public Health, Family Resource and Referral Center, and Food Stamps). Each program provider has collected specific data pertinent to its own needs. But if that data could all be considered at one time, it might be possible to create a much more complete picture of the client; i.e., possible to determine what other assistance that person is or could be qualified to receive, and determine the effect of a particular service.

The Feasibility Study documented in this report explored the viability of achieving this vision and technical approaches to realize the vision. This report was developed as a part of the Shared Decision Support System Feasibility project and involved the following data gathering and research activities:

- › Interviewed representatives from over 20 family and children services programs across 10 agencies within San Joaquin County.
- › Conducted work sessions with representatives from family and children agencies within the County to discuss services, programs, capabilities, and key issues and benefits of a shared decision support system.
- › Conducted research of other children and family agencies in the State who have undertaken similar shared decision support system projects.
- › Conducted research of other governmental agencies across the nation, that have implemented similar cross-agency data sharing solutions.

This report presents the results of the Feasibility Study project.

GOALS AND OBJECTIVES OF A SHARED DECISION SUPPORT SYSTEM

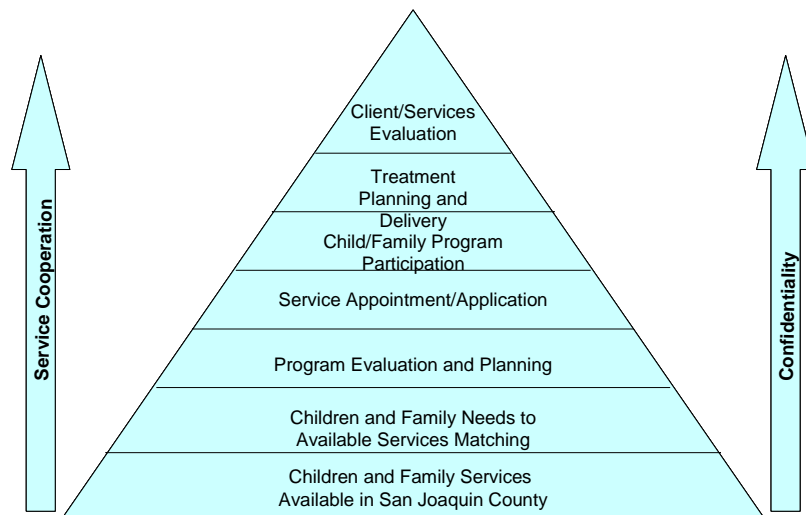
The following goals and objectives express the Commission and program participants' collective thoughts about a shared decision support system for San Joaquin County.

- › Enhance the well being of families and children with the integration of related information throughout San Joaquin County.
- › Promote information sharing and appropriate access to information while recognizing the privacy of families and independence of each agency.
- › Link information from diverse systems to create a single virtual system.
- › Share information with minimal impact to existing systems.
- › Maintain an infrastructure so that agencies control what information will be shared and to whom.

- › · Become the foundation to the support decision making needs of the agencies providing services to children and families in San Joaquin County
 - J · Allow agency staff and management to use and focus their resources more efficiently
 - J · Decrease the amount of duplicate data entry
 - J · Allow access to new sources of information, in addition to new ways of looking at old information
- › · Provide consistent standardized information – information from one agency can be matched with information from another agency.
- › · Become an adaptive and resilient source of information to meet changing business needs (i.e. new questions that need to be asked or new data needs to be tracked).
- › · Ensure data confidentiality and security – including automatic checks and balances to regulate data content and access, as well as audit trails to track access.

The programs participating in the feasibility study identified functions that they believe would improve services and outcomes for children and families by sharing information. The functions are listed in Exhibit I below. In the exhibit, the functions are “stacked” in relation to the level of information about the child/family required to perform the function and *to what degree that information reveals the identity or identifying information about the child/family*.

Exhibit I



As indicated in this exhibit, there is a relation between functions that may improve service coordination and the sensitivity or confidentiality of the information being applied and shared to support the function. The illustration reveals that the sensitivity or confidentiality of identifying information shared to support the functions at the top of the pyramid are substantial whereas the information required to support the functions at the bottom of the pyramid do not share the same level of confidentiality concerns.

TECHNOLOGY RECOMMENDATIONS

The Commission can approach a technical solution to meet its shared decision support goals and objectives, in several ways, including the following:

1. Rewrite the core applications across the participating agencies using the same database platform. Technology industry leaders consider this as the most expensive and time-consuming and massive approach to implementing a shared decision support system, but one that will yield great results – once implementation is complete. An important consideration relative to this approach, other than cost and effort, is that this approach would disrupt the business of all programs and agencies for an extended period of time while the many systems are being replaced. The substantial effort involved in re-writing each core application across all children and family agencies in San Joaquin, the associated costs and the potential disruption to the operations of the agencies, makes this option not realistic or feasible for the Commission.
2. Implement a data warehouse solution. A data warehouse solution combines disparate databases to provide a more unified view and access to critical data for decision-making and research, and is designed for query and analysis rather than for transaction processing. This approach provides techniques to reach into existing files and databases to extract and cleanse data. Once placed in the data warehouse, the data can be compared, reviewed, and processed. An important element of a data warehouse is that once data is cleansed and entered into the warehouse, data is not changed – the purpose of a warehouse is to enable you to analyze what has occurred.

Data warehousing is the commonly accepted vehicle that drives decision support system implementations today. A data warehouse is: “a single, central location containing a reconciled, merged and cleansed version of data extracted from a wide variety of operational systems”.

Recommendation: Implement the shared decision support capabilities through a data warehouse solution. Data warehouse technologies offer an excellent approach to meet the shared decision support needs of the Commission and the children and family agencies of the County. Best practices have shown that data warehouse technologies enable data sharing across an organization to enable better business decisions. Data warehouses allow information that is spread across multiple databases to be placed in an electronic “warehouse” where staff can access and use the data more efficiently. A data warehouse provides (1) the mechanism to support the Commission’s shared decision support system needs and (2) the ability to view the data electronically without changing it or exposing it to anyone without proper authority.

Two Approaches to Data Warehouses

There are two data warehouse implementation approaches for the Commission's consideration that are explored in detail in this report: a centralized data warehouse or a virtual data warehouse. The primary difference is "where" the data is stored and "how" it is accessed.

1. A centralized, physical data warehouse is a single database of data that has been extracted from disparate databases, cleansed and integrated into a single data warehouse.
2. A virtual data warehouse is a solution where pointers and links are stored centrally and data remains in its original database or data source. With the advent of new technology, particularly the growth of the Web and data mining tools, the conventional method of storing data in a single, centralized data warehouse is being replaced with pointers and links to information. Simply put, a virtual data warehouse leaves the data in its original database and through a delivery mechanism called "publish and subscribe", collects and provides data on request.

Recommendation: Establish a centralized data warehouse. As a first phase, implement a virtual data warehouse to establish the foundation for a centralized data warehouse, as capabilities grow, "lessons learned" are discovered and organizational readiness is enhanced. Best practices indicate that starting with a virtual data warehouse and migrating towards a centralized data warehouse, provides an excellent approach for realizing results early, minimizing risks and establishing a foundation for more complex implementations.

The recommended conceptual technical architecture for the shared decision support system is presented in detail in this report. The recommendation is based on the objective to show value early and to provide data warehouse functionality with the minimum amount of effort and cost. As data sharing agreements mature, governance structures evolve, and resource constraints ease, the Commission and its partnering agencies can migrate to a more robust and powerful centralized data warehouse. This can be accomplished without losing the investments made in the applications, data model and tools used to implement the virtual data warehouse.

IMPLEMENTATION APPROACH RECOMMENDATIONS

There are many ways that the Commission could consider supporting the improved coordination of child and family services through the implementation of a virtual data warehouse. The report discusses three specific options for the Commission's consideration:

1. Implement an initial virtual data warehouse that focuses on building intra-agency sharing capacity within large multi-program areas to establish a foundation for cross agency sharing of information.
2. Build information sharing capabilities within the virtual data warehouse for functions that have minimal implications on the confidentiality of information.
3. Build the virtual data warehouse based on programs that contract with the Commission.

Confidentiality of individually identifiable information presents the greatest challenges to a shared decision support system for San Joaquin County children and family service providers. Those functions that require the identity of the child or family may only be accomplished when the authorization is given or statutory provisions allow for the sharing of such identified information without the authorization of the child, their representative or the family.

While there are avenues, such as child abuse and neglect, juvenile corrections and direct providers of health care services to an individual, that allow the sharing of identified individual information without authorization there is no broad reaching provision that allows the sharing of individually identifiable information between the network of child and family services. However, as illustrated in the Exhibit I, presented earlier in this Executive Summary, there are many functions that a data warehouse could provide that do not require individually identifiable information and do not impact the confidentiality and security of information released or maintained for sharing.

Recommendation: **Implement an initial virtual data warehouse by building data sharing applications that do not require complicated confidentiality and data sharing arrangements.** The overriding recommendation is to start small and to build incrementally. Functions that could be initially built include (1) bulletin board of service offering profiles, location and operating hours, (2) a service and referral function including the automated matching of family characteristics and needs to services, and (3) online appointment. These applications and functions would be available for use as the Commission evolves over time towards the centralized data warehouse.

Recommended Functions to Implement

Under the recommended approach, functions uniformly identified by the participant service agencies as useful to improving the accessibility and quality of services to children and families could be implemented. Specifically, the implementation recommendation is to build the following six applications on the virtual data warehouse:

1. Post information about all services and resources available to children and families in San Joaquin County.

2. Post information about the content, location, contact and required entry qualifications for the available services.
3. Provide an electronic “universal services application” that matches the child/family needs and eligibility parameters to the services within the County to generate a profile of available services to support and assist the applicant child/family.
4. Provide the ability to transmit an appointment application to specific services if the client wishes to authorize the submission and transmittal of individually identifying information.
5. Provide a referral tool to assist service providers and families in understanding the array of services and resources that may be available, and to promote easy access to those services.
6. Provide a common site to communicate aggregated or de-identified information about service demand, utilization rates, and other indicators useful to providers of child and family services in planning and evaluating their services.

This implementation approach allows the Commission to support the development of an information sharing capabilities through a virtual data warehouse that (1) rapidly promotes access to needed and available services for children and families, (2) responds to a need identified by a broad range of child and family service agencies within the community, and (3) supports the development of a broad interagency coalition to own and govern the data warehouse. This appears to be achievable within the limitations of confidentiality, the available resources of the child and family service agencies, and the variances in technology environments across agencies.

Why this approach

- › · Achieves results quickly and can help to generate enthusiasm and commitment to participate
- › · Establishes a foundation for broader capabilities and collaboration
- › · Applies limited resources more effectively
- › · Complimentary to the overall goals and objectives of the shared decision support system: investments made in terms of hardware, software, and staff are directly applicable to the longer term goal of a centralized data warehouse

Estimated Level of Effort to Implement

The following table presents high-level estimates to implement the six functions described above. As illustrated by the table, these functions provide early value to the Commission and its partner agencies, with minimal investment. More importantly, these applications and the investment made in hardware, software and staff, will be critical components of realizing the longer-term goal of a centralized data warehouse.

Function	Level of Effort Estimates		
	Hours	Effort Days	Cost
1. Online service profiles	657.33	82.17	\$62,447
2. Online program operational data (hours, location, etc)	430.67	53.83	\$40,913
3. Universal application	2,441.33	305.17	\$231,927
4. Electronic appointment transmission	682.00	85.25	\$64,790
5. Online referral tool	403.33	50.42	\$38,317
6. Reporting tool for de-identified information	868.00	108.50	\$82,460
Total	5,482.67	685.33	\$520,853

While each of these functions provides discrete capabilities, there are certain economies of scale that can be realized from each subsequent implementation – collectively these functions build capacity and a foundation for broader capabilities. The cost estimates presented in the table above assume a single implementation. However, if the Commission were to approach the implementations collectively, cost and level of effort benefits could potentially be realized. The table on the next page illustrates the potential benefit of combined implementation efforts.

Function	Effort Estimate		
	Hours	Effort Days	Cost
1, 2, and 5: Online service/program profile and referral tool	1215.33	151.92	\$115,457
3. Universal application	2441.33	305.17	\$231,927
4. Electronic appointment transmission	682.00	85.25	\$64,790
6. Reporting tool for de-identified information	868.00	108.50	\$82,460
Total	5,206.67	650.83	\$494,633

CHALLENGES TO IMPLEMENTATION

Implementing an information sharing solution within a single agency can be a complicated and risky project; implementing it across many different agencies – each with different missions, systems, and cultures – is quite another. The opportunity for

issues to arise that could impede the success of a collaborative project in a cross-agency environment is huge.

The readiness assessment discussed in this report, describes the readiness capacity of the Commission and County to launch a shared decision support system implementation project. The following recommendations, detailed in the report, are suggested to mitigate not only the risks inherent to a cross agency technology project, but also to mitigate specific readiness shortcomings of San Joaquin.

- › · Commit to a shared vision and governance structure that supports collaboration and joint-agency decision making
- › · Gain participating agency buy-in
- › · Establish fail-proof communication mechanisms for inter and intra-agency communication
- › · Establish agreements to share data
- › · Ensure the privacy and integrity of information
- › · Plan for the staffing requirements of not only the implementation project, but also to maintain and enhance the data warehouse

Lessons learned

The following common “lessons learned” themes are referenced by various projects discussed in the report. These themes are important considerations for the Commission.

- › · Place the business goals and objectives at the center of the project – data warehouse projects should not be a technology project.
- › · Establish sponsorship and participation before project start to ensure advocacy and communication channels.
- › · Ensure adequate staffing for the project team to include not only technology staff but also business analysts who understand the programs involved in the data warehouse.
- › · Be flexible to accommodate for the unexpected delays, complications and changing requirements.
- › · Ensure that all elements in the data warehouse answer some specific business question.
- › · Build the data warehouse iteratively in short phase (three to six months) to provide early successes, sustain momentum and enthusiasm, and validate approach and scope.
- › · Utilize external resources (consultants, vendors, etc.) to provide the needed expertise and to augment internal skills and competencies.

BENEFITS TO THE COMMISSION AND THE CHILDREN AND FAMILY AGENCIES OF SAN JOAQUIN COUNTY

In addition to providing a system to directly assist children and families in identifying and accessing services the recommendations outlined in this report (virtual data warehouse with preliminary data sharing applications) would promote the development of broad interagency participation and ownership:

- › · All child and family service providers would work together to form the content and maintain updated information. This would form the basis for beginning a broad and inclusive interagency group dedicated to a common information system for child and family services.
- › · The newly formed interagency information coalition would begin to establish organizational rules, system ownership and identification of partner agency responsibilities.
- › · The applications built on the virtual data warehouse would allow the demonstration of interagency coordination and system administration and set the occasion for a centralized data warehouse governance structure.
- › · The solution would allow for the submission and transmittal of confidential information if authorized by the applicant client. This would allow the solution to demonstrate security provisions and build trust that a centralized data warehouse will adequately protect highly sensitive information.
- › · The recommendations allow for the future development of more extensive information sharing opportunities.

1.0 INTRODUCTION

The Commission is charged with the responsibility of enhancing the quality of life for children and families in San Joaquin County. The Commission, by its composition and through its goals, addresses the many components to the quality of life for children and families –financial, social, spiritual, and physical well being of children and families are essential to their quality of life. The Commission recognizes that of the many agencies providing support to families and children in San Joaquin County, each has an important but defined focus for their services and that no agency addresses the full spectrum of child and family needs.

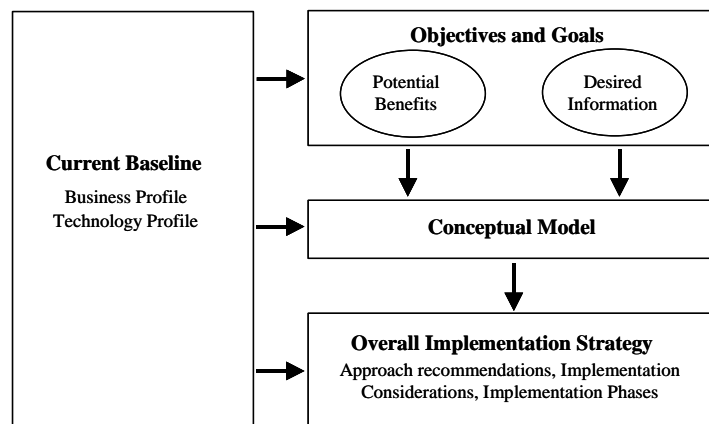
The Commission believes that the comprehensive needs of San Joaquin County children and families could be better addressed through improved coordination of resources and increased integration of services. They believe that (1) broader knowledge of a family's needs, (2) expanded awareness of available resources, and (3) coordinated delivery of services could enhance the effectiveness of the existing service system. The Commission believes that better coordination of resources and services to children and families could be achieved by increasing communication between service providers. They recognize that today's computer technology provides the opportunity to enhance communication between providers, facilitate information sharing and improve coordination of services.

Given their desire to improve the coordination of services to children and families and the availability of technology to achieve this goal, the Commission envisioned the implementation of a Shared Decision Support System for San Joaquin County. Such a system would allow agencies to electronically share information to improve access to resources, increase coordination of services and facilitate joint planning for children and families. The envisioned solution would assist the partner agencies in developing intervention strategies, optimizing service integration, facilitating resource identification and referral, and evaluating performance outcomes.

This report documents the results of a feasibility study, conducted for the Commission, to assess the viability of a Shared Decision Support System for San Joaquin County's children and family service agencies. The overall objective for this study was to (1) conduct an evaluation of business requirements and capabilities, and (2) develop a future solution strategy for implementing a Shared Decision Support System.

The diagram presented on the next page, portrays the overall project approach. As evident in the graphic, the analysis presented in this report provides a baseline starting point for more detailed design and implementation tasks to follow.

First 5 San Joaquin Shared Decision Support System Feasibility Study Project Overview



The report is organized in the following five chapters:

- › **Chapter 1.0 – Introduction:** Presents an overview of the Feasibility Study report.
- › **Chapter 2.0 – Baseline Analysis:** Provides an overview of the participating agencies, including the following:
 - J Profiles of participating agencies as related to a shared decision support system, as well as perspective on a shared decision support system.
 - J Discussion about the related data applications used by the participating agencies.
 - J Readiness assessment for a shared decision support system.
- › **Chapter 3.0 – Requirements:** Summarizes the business requirements for a shared decision support system, as identified by the project participants, including the following components:
 - J Objectives and business drivers for a shared decision support system
 - J Conceptual model for a shared decision support system
 - J Critical business requirements to be met by a shared decision support system
- › **Chapter 4.0 – Recommendations:** Identifies recommendations to meet the Commission’s needs for a shared decision support system and presents a recommended technical model for the shared decision support system.
- › **Chapter 5.0 – Implementation Recommendations:** This provides a high level discussion of suggested steps to move to the recommended solution. This includes a discussion about implementation approaches and considerations and an implementation plan.

2.0 BASELINE ANALYSIS

One of the most important assets of an organization is its information. For the children and family service agencies of San Joaquin, information is maintained in eligibility, appointment, billing, case management, treatment, admission, birth records. The level and diversity of places information is collected and maintained for most child and family services information is critical to designing and delivering services and measuring response to service. The level of information is matched by the strict privacy in which it is held. The density of information reflects the interactive and client centered nature of the child and family service. In the case of the children and family agencies of San Joaquin County this includes information such as the following:

- › Identifying, i.e.,
 - J Name
 - J Date of Birth
 - J Place of Birth
 - J Mother's Maiden Name
 - J Social Security Number
 - J Gender
 - J Ethnicity
- › Contact
- › Family
- › Education
- › Financial
- › Presenting Issue
- › History, i.e.,
 - J Health
 - J Social
 - J Education
 - J Criminal
 - J Services/Assistances Received
- › Evaluation, i.e.,
 - J Diagnosis
 - J Test Results
 - J Eligibility Determination
 - J Processes applied to determine an appropriate intervention
- › Service/Treatment
- › Service Provider
- › Response to Service/Treatment
- › Consent to Treatment

› · Health Insurance/ Payment for Service Source

Additionally, each agency throughout the County has multiple automated systems to support the collection and reporting of this information. The Shared Decision Support Project documented in this report, evaluates the viability of implementing a solution that allows information maintained in the County's various automated and manual systems of record, to be shared across the children and family agencies of San Joaquin. This chapter provides an overview of the agencies providing support to families and children in San Joaquin County, including a discussion of business mission and technology capacity. The business and technology profiles provide an important foundation for better understanding of overall readiness to implement a shared decision support system, but also the compelling issues and requirements for such a system, from the perspective of the agencies.

AGENCY PROFILES

The Commission is visionary in its pursuit and commitment to funding programs that will have a long-term impact on the health and well being of the children and families of San Joaquin. In addition to the Commission, the following selected agencies participated in the feasibility study.

- › · **Human Services Agency (HSA)** – provides State and Federally mandated social services and benefits to citizens of San Joaquin County, with a mission to lead in the creation and delivery of services that improve the quality life for our community. This is a large social services agency providing the following programs and services: Child Welfare Services that include Foster Care, Family Permanency Planning, Adoption, and the Mary Graham Children's Shelter, Child Protective Services, Aging and Adult Services, CalWORKs assistance and self-sufficiency programs, Medi-Cal, and the Food Stamps program.
- › · **County Office of Education** – is a regional agency whose mission is to provide educational leadership, resources, and service to assist school districts to be effective facilities of learning for all pupils.
- › · **Health Care Services (HCS)** – is an agency that provides health services, education and professional training in an integrated system that values quality of life, family interaction, and respect for both clients and employees. The Agency is committed to the delivery of community-oriented, culturally sensitive, and affordable health care throughout San Joaquin County. It provides services through the following five divisions: San Joaquin General Hospital, Emergency Medical Services, Public Health, Mental Health, and Office of Substance Abuse.
- › · **Probation** – As a major partner in the justice system, in collaboration with public and private entities, the Department (1) supervises adult and juvenile offenders, (2) supports the courts by preparing criminal investigations and enforcing court orders, and (3) aids victims by collecting restitution. The Department also operates Juvenile Hall, Juvenile Camp and the Juvenile Court Work Program, along with a variety of programs for juvenile and adult offenders and at-risk families. The Department's

mission is to increase opportunities, through cost effective programming, for individuals at risk and offenders to experience success in socially and legally acceptable ways.

- › **Health Plan of San Joaquin (HPSJ)** – is a publicly sponsored, not-for-profit, managed care health plan designed by and for the people of San Joaquin County. Licensed as a Health Maintenance Organization under the State of California Knox-Keene Act, HPSJ contracts with the State Department of Health Services for care of persons on Medi-Cal in San Joaquin County, as well as the Healthy Families Program regulated by the California Managed Risk Medical Insurance Board. This agency is dedicated to providing access to high quality, culturally sensitive, linguistically appropriate, health care services in conjunction with community providers and in partnership with open-door safety-net providers to improve the health and well being of our community.
- › **Family Resource and Referral Center (FRRC)** – operates the childcare subsidy program to assist working families in obtaining quality child care services. They provide information, training and advocacy to enhance childcare and family well being in San Joaquin County. The primary focus for Family Resource and Referral is quality care for children and technical assistance to those working with children and families. It provides a clearinghouse for information on childcare services, parenting, nutrition, and child safety, and it provides childcare referrals to all parents in San Joaquin County. The agency also administers childcare and nutritional resources; conducts workshops in effective practices of child rearing, childcare, and child safety.
- › **City of Stockton, Parks and Recreation** – creates community through people, parks and programs. Parks and Recreation provides a variety of recreational and community programs, serving approximately 275,000+ citizens residing in the incorporated and unincorporated areas within San Joaquin County.
- › **United Cerebral Palsy** – is a clinically based program that provides a variety of programs and services to over 500 children and adults every day throughout San Joaquin, Calaveras and Amador Counties. Its mission is to enhance the quality of life for persons with disabilities and to enable them to become more productive, independent and integrated into the community.

Table 2.1 on the next page, summarizes the breadth of programs and services offered by the various agencies providing services to children and families within the County. The table also indicates whether or not an agency partners with State or Federal agencies. Detailed agency profiles are presented in the appendices.

Table 2-1

Program/Service	Agency	Federal/ State Partner	Organization Type
Family Assistance			
CalWORKs	> HSA	D	> County
Child Care Assistance	> FRRC	D	> Public Non Profit
Child Care			
Child Care Assistance	> FRRC	D	> Public Non Profit
Child Care Quality	> FRRC	D	> Public Non Profit
Child Welfare			
Child Protective Services	> HSA		> County
Adoption	> HSA	D	> County
Foster Care	> HSA	D	> County
Family Permanency Planning	> HSA	D	> County
Mary Graham Children's Shelter	> HSA		> County
Recreation			
Parks and Recreation	> City of Stockton Parks & Recreation	D	> City
Aging, Adult & Community Services	> HSA	D	> County
Health Insurance			
Medi-Cal	> HSA > Health Plan of San Joaquin > HCS	D	> County > Public – Non Profit > County
Healthy Families	> Health Plan of San Joaquin > HCS	D	> Public – Non Profit > County
Health and Health Care Services			
San Joaquin General Hospital	> HCS	D	> County
Health Plan of San Joaquin	> Health Plan of San Joaquin	D	> Public – Non Profit
Children's Mental Health	> HCS - Mental Health	D	> County
Substance Abuse	> HCS -Office of Substance Abuse	D	> County
Emergency Medical Services	> HCS - Emergency Medical Services	D	> County
Vital Statistics	> HCS - Public Health	D	> County
Immunization Registry	> HCS - Public Health	D	> County
Maternal, Child, Adolescent Health	> HCS - Public Health	D	> County
Adolescent Programs	> HCS - Public Health	D	> County

Program/Service	Agency	Federal/ State Partner	Organization Type
California Children's Services	> HCS - Public Health	D	> County
Medical Therapy Program	> HCS - Public Health	D	> County
EPSDT (Early Periodic Screening, Diagnosis and Treatment)	> HCS - Public Health > HCS – Mental Health	D	> County > County
Child Health and Disability Prevention	> HCS -Public Health	D	> County
Developmental Disabilities	> United Cerebral Palsy	D	> Private – Non Profit
Education			
Pre K-12 Education	> County Office of Education	D	> Public – Elected Board
Nutrition			
WIC	> HCS - Public Health	D	> County
Child Nutrition Programs	> County Office of Education > FRRC	D	> Public – Elected Board > Private Non-Profit
Food Stamps	> HSA	D	> County
Juvenile Corrections			
Juvenile Delinquency Prevention & Control	> San Joaquin County Probation		> County
Juvenile Probation	> San Joaquin County Probation		> County
Juvenile Hall	> San Joaquin County Probation		> County

As indicated by the table, there are several programs represented in most of the general service areas, such as health care, and some of the agencies operate programs in more than one general service area, such as health care and nutrition. The larger trend, however, is that the agencies with multiple programs, such as HSA and HCS, tend to predominantly operate programs in single or related general service area, such as health or family/child welfare. A number of governance structures exist across these agencies:

- > Three agencies providing two thirds of the programs are County operated
- > One agency is City operated
- > One is a public agency with an elected board
- > One is a public agency with an appointed board (Health Plan of San Joaquin)
- > Three are private, non-profit agencies

A large proportion of the programs for children and families are operated by a government agency. A majority of the programs are operated directly by San Joaquin County government or through a County Supervisor appointed Board (Health Plan of San

Joaquin). This means that a substantial percentage of children and family services participating in this study share a common governance structure. This shared governance structure may facilitate decision- making and implementation of any system that entails control and sharing of information about these programs. It also means that agreements for sharing of information may already exist or may be easier to craft as there is a common point of control, authority and responsibility for these programs.

Additionally two thirds of the programs have federal and/or state partners. The presence of state and federal partners in a large percentage of the participating programs would indicate that these partners will need to be included in the planning and implementation of any information sharing program. It also may mean that the federal and/or state partners have some ownership and control of the information that will be shared or of the systems that support the collection and application of this information. Either way they will need to participate in any further development of the proposed sharing system.

TECHNOLOGY PROFILES

The following table summarizes the applications identified by project participants. Please note, that this is not a comprehensive inventory nor is it a detailed analysis of the technical capacity of applications supporting the agencies serving children and families in San Joaquin. The information presented below was gathered during interviews with project participants and presented to highlight the vast range of applications, functionality, and platforms used by the agencies. Detailed technology profiles are presented in the appendices.

Table 2-2

Agency	Application/Platform	State of California System
Human Service Agency	<ul style="list-style-type: none"> > CWS/CMS (Child Welfare System/Case Management System) – Mainframe > SAWS (State Automated Welfare System) – Mainframe > MEDS (Medi-Cal Eligibility Data System) – Mainframe > Mary Graham database (database application that support the operations for Mary Graham Children’s Home) – PC network > OASIS (County-based system that augments SAWS data) - Mainframe 	D D D
County Office of Education	<ul style="list-style-type: none"> > Various mainframe and PC networked systems 	
Health Care Services	<ul style="list-style-type: none"> > MEDs – Mainframe > CMS.net (Children’s Medical Services) – Mainframe > LodeStar (client database for Maternal 	D D D

Agency	Application/Platform	State of California System
	and Child Health Branch) – PC Network > TIMS (Tuberculosis database) – Mainframe > HARTS (AIDS tracking and reporting database) – Mainframe > AVSS (State of California vital statistic database) – Mainframe > CAP (Community Access Program) – PC network	D D D
Probation	> JJIS (Juvenile Justice Information System) – Browser based	
Health Plan of San Joaquin	> Various SQL Server databases > Web-based applications	
Family Resource and Referral Center	> CSP (database of providers) – PC network > Noho (alternative payment tracking system) – PC network	
United Cerebral Palsy	> Referral database – FileMakerPro	
City of Stockton Parks and Recreation	> Automated recreation software, developed by CLASS Software Solutions (recreation software) – PC	
Children and Families Commission of San Joaquin	> OCERS (Outcomes Collection, Evaluation and Reporting Services) – Web-based	

The following summarizes technology-related observations from the interviews with participating agencies. More detailed technology profiles are in the appendices.

- > ***The diversity of application platforms and architectures intensifies the complexity of a shared decision support effort.*** As indicated in the table above, there are a variety of technology solutions and platforms in use across the County. Each application platform and architecture will require specialized expertise to participate in a shared decision support solution.
- > ***Multiple systems are used to store/process the same information.*** As indicated in the appendices, many systems store similar information across agencies. For example, client identifier and treatment information. This can create difficulties such as:
 - J Multiple instances of the same data exist in different applications with no way to determine what the definitive or correct data.
 - J Common applications may contain similar data from multiple agencies with no guarantee that the data is consistent.
 - J Summary or aggregate data is difficult to obtain without significant effort to reconcile, cleanse and filter the data.

- › *The age and ownership of some applications (state systems) may increase the complexity of using data in collaborative activities across agencies or utilize data as a strategic enterprise resource.* Given the age of certain mainframe-based solutions, and the lack of direct control of state-based applications, this may limit the flexibility to accommodate a shared decision support system solution.
- › *The technology needs of staff as well as the technology literacy of staff vary widely.* Many agency staff work in environments not conducive to computer equipment (PCs) or are field staff not working in an office. Additionally, participants indicated a wide range of technology skills across staff. These factors will require a very flexible technical solution for the shared decision support solution.
- › *Near term technology needs will grow in areas of collaboration and data sharing.* All agencies that participated in this project recognized that data sharing and relating could create new knowledge, as well as new uses for information within and across the agencies.
- › *The technical information environment of many of the participating agencies appears to be in an evolutionary stage.* Many agencies are transitioning from a paper based information system to an electronic system and are maintaining both systems.

READINESS ASSESSMENT

An important element of assessing the viability of a complex technology project such as a shared decision support system should include an assessment of the readiness of an organization for such a system. Research and best practices has shown that the following readiness factors are critical assessment points. These readiness factors measure attributes that contribute to success or failure of this kind of technology project. Readiness factors can be used to identify actions that can be undertaken to help achieve a successful implementation – they help organizations determine to what extent the following factors represent risk to a successful implementation:

- › Stakeholder Representation
- › Clarity of Concept
- › Level of Interest in Developing and Participating in a Shared System
- › Capacity to Support System Development and Implementation

The following is a summary of these readiness factors as it relates to this project for a shared decision support system for San Joaquin County.

Stakeholder Representation

A primary consideration in the readiness assessment, and a fundamental requirement for any successful collaboration, is the commitment of participating entities to a commonly shared vision. The expressed level of commitment to a commonly held vision must meet a threshold that assures the Commission their vision is clearly shared and supported by key stakeholders. The Commission needs to know that they have involved the right

partners in the feasibility evaluation process and that their partners have both the interest and capacity to develop an information sharing system.

Through stakeholder meetings and interviews information has been gathered to gauge the interest level in the proposed project. Information has been collected to reflect how stakeholders envision such a solution working, what purposes they believe it can serve and what value they believe it can bring to their programs.

The shared decision support system envisioned by the Commission would connect and support the broad range of existing resources and services for children and families in San Joaquin County. The system requires the participation of the essential San Joaquin child and family service programs. The wide array of services promoting the well being of children and families requires that stakeholders representative of the full continuum of services participate in the information sharing system. ***Representative stakeholder participation is critical to the success of the System.***

Stakeholder participation in meetings and structured interviews conducted for this project has been reviewed to assess the following stakeholder factors:

- › Range of Child and Family Services Represented
- › Type of Provider Agencies
- › Organizational Position of Participants

Each of these is described below.

Range of Child and Family Services Represented

Entities representing over thirty different programs participated in the structured interviews and meetings conducted as part of this feasibility project. The participating programs, their affiliated agency, and their target service function are presented in the table below.

Table 2-3

Stakeholder Participation	
Program/Service	Agency
<i>Family Assistance</i>	
CalWORKs	San Joaquin County Human Services Agency (HSA)
Child Care Assistance	Family Resource & Referral Center
<i>Child Care</i>	
Child Care Assistance	Family Resource & Referral Center
Child Care Quality	Family Resource & Referral Center
Child Welfare	
Child Protective Services	HSA
Adoption	HSA
Foster Care	HSA
Family Permanency Planning	HSA
Mary Graham Children's Shelter	HAS

Stakeholder Participation	
Program/Service	Agency
<i>Recreation</i>	
Parks and Recreation	City of Stockton Parks & Recreation
Aging, Adult & Community Services	HSA
<i>Health Insurance</i>	
Medi-Cal	HSA Health Plan of San Joaquin San Joaquin County Health Care Services (Health Care Services)
Healthy Families	Health Plan of San Joaquin Health Care Services
<i>Health and Health Care Services</i>	
San Joaquin General Hospital	Health Care Services
Health Plan of San Joaquin	Health Plan of San Joaquin
Children's Mental Health	Health Care Services- Mental Health
Substance Abuse	Health Care Services-Office of Substance Abuse
Emergency Medical Services	Health Care Services-Emergency Medical Services
Vital Statistics	Health Care Services- Public Health
Immunization Registry	Health Care Services- Public Health
Maternal, Child, and Adolescent Health	Health Care Services- Public Health
Adolescent Programs	Health Care Services- Public Health
California Children's Services	Health Care Services- Public Health
Medical Therapy Program	Health Care Services- Public Health
EPSDT (Early Periodic Screening, Diagnosis and Treatment)	Health Care Services- Public Health
Child Health and Disability Prevention	Health Care Services -Public Health
Developmentally Delayed	United Cerebral Palsy
<i>Education</i>	
Pre K-12 Education	San Joaquin County Office of Education
<i>Nutrition</i>	
WIC	Health Care Services- Public Health
Child Nutrition Programs	San Joaquin Office of Education Family Resources & Referral Center
Food Stamps	HSA
<i>Juvenile Corrections</i>	
Juvenile Delinquency Prevention & Control	San Joaquin County Probation
Juvenile Probation	San Joaquin County Probation
Juvenile Hall	San Joaquin County Probation
<i>Program Evaluation</i>	
Children and Family Service Program Research and Evaluation	Data Co-op
<i>Information Services</i>	
Information Systems Division	San Joaquin County Information Systems Division

As can be seen in the table, the participating programs represent a selected group of resources and services supporting children and families in San Joaquin County. The essential service areas of health, nutrition, education, recreation, welfare and juvenile

corrections are all represented – and the range of available resources, services and programs within each of those service areas.

The participant programs are highly representative of the San Joaquin child and family service community. The level of program participation achieved in this feasibility study is not only highly representative but substantially inclusive of the San Joaquin child and family service programs. This achievement reflects the level of community interest in the project and the effective preparation exercised by the executive leadership of the Commission in preparing for the study.

Type of Provider Agencies

Similar to Table 2-1, the child and family programs participating in the feasibility assessment process and their type of provider organization are identified in the Table 2-3 on the next page.

Table 2-4

Program/Agency	Department	Category of Service
Information Systems Division	Information Systems Division	Information Systems
CalWORKs /Cash Assistance	Human Services Agency (HSA)	Family Assistance
Food Stamps	HSA	Nutrition
Medi-Cal	HSA	Health Insurance
Aging, Adult & Community Services	HSA	Recreation Child Welfare
Child Protective Services	HSA	Child Welfare
Child Welfare: J · Adoption J · Foster Care J · Family Permanency Planning	HSA	Child Welfare
Mary Graham Children's Shelter	HSA	Child Welfare
San Joaquin General Hospital	San Joaquin County Health Care Services (HCS)	Health Services
Children's Mental Health Services	HCS	Health Services
Office of Substance Abuse	HCS	Health Services
Emergency Medical Services	HCS	Health Services
Public Health: J · Vital Statistics J · Immunization J · Registry J · Family Health: - Maternal, Child, and Adolescent Health - Cal Learn/Sibling	HCS	Health Services

Program/Agency	Department	Category of Service
<ul style="list-style-type: none"> Program - WIC - California Children's Services - Medical Therapy Program - EPSDT - Child Health & Disability Prevention Program 		
Juvenile Delinquency Prevention & Control	San Joaquin County Probation Department (Probation)	Juvenile Corrections
Juvenile Hall	Probation	Juvenile Corrections
Juvenile Probation	Probation	Juvenile Corrections
Pre K-12 Education	County Office of Education (COE)	Education
Child Nutrition Programs	COE	Nutrition
Medi-Cal Plan	Health Plan of San Joaquin	Health Services
Healthy Families Plan	Health Plan of San Joaquin	Health Services
Parks & Recreation Programs	City of Stockton	Recreation
Child Care Assistance Program	Family Resource & Referral	Child Development
Child Nutrition Programs	Family Resource & Referral	Nutrition
Developmental Delayed	United Cerebral Palsy	Health Services
Data Co-Op	Data Co-Op	Evaluation

The distribution of program provider types participating in the feasibility study needs to be compared to that of the intended community of shared decision support system participants. The low representation of private, non-profit programs may be representative of the full community of child and family services providers. If it is not representative, however, then adjustments are needed to more broadly involve those private providers that would be participating in the System into the planning process.

Organizational Position of Participants

The individuals participating in the stakeholder meetings and the structured interviews have predominantly been from the executive and management levels. Primarily agency executives, program chiefs, and information system leaders have represented participating child and family programs. Involvement of additional program staff will most likely increase as this study moves into the next phase.

Clarity of Concept

The shared decision support system solution envisioned by the Commission is an abstract concept that can be realized in many different ways. Assessing the feasibility of an electronic information sharing system is a technical and complex process. Basic to the process, however, are steps common to all information system projects. Those steps are 1) defining the purpose of the project, 2) assessing the value of the project to your organization, and 3) identifying, selecting and evaluating the system solution.

Successful completion of these essential steps require that stakeholders in the implementation project achieve a clear and common concept of the project purpose, its value to their organization and solution capabilities. The feasibility process assists the stakeholders in developing and articulating these concepts. The current assessment is provided to gauge the status of these evolving concepts among the participating stakeholders.

Purpose of System

The participant child and family programs consistently envisioned the shared decision support system as a method of exchanging information they are not currently capable of efficiently sharing. They uniformly identified the improved exchange of information between child and family services as the primary purpose for the solution. Improved interagency service coordination and referral, as well as resource identification, were consistently identified functions the solution would better enable. The stakeholders consistently viewed the solution as a computer-based tool to improve the quality of their services.

While there was substantial uniformity in the essential purpose of the shared decision support system, there were widely varying interpretations of detailed information content and application. The type of information agencies envisioned exchanging through the solution varied in relationship to the mission of the program, the type of services provided, and the role of the participating stakeholder within the organization. These variations reflect the diversity of child and family services represented and the variety of functions performed within programs. The “richness” of visions expressed is indicative of the range of potential functions supportable through an information sharing system.

Value of System

Most participating programs identified specific ways in which an information sharing system could improve the effectiveness of their services. Many also identified improvements that other programs could achieve by receiving their information. The level of value that stakeholders could identify for their organizations and their clients varied considerably, however.

Programs that frequently interface with other programs and programs that reside within a multiple program agency had a clearer concept of the value an information system could bring to their business practices. Executive stakeholders also expressed well-formed ideas of how the projected system would benefit child and family services. They identified

direct service improvements, performance evaluation and resource planning benefits the System would enable.

Much work remains to be done to define the specific business requirements and technical design of a shared decision support system – completed during the detailed design and requirements efforts of an implementation project – it can be expected that agency ability to identify the value of such a system to their program will be refined and a greater clarity will be achieved.

Technical Design and Capabilities

Child and family program participants demonstrated a diverse but overall modest understanding of the structural characteristics and capabilities of modern information sharing technology. This is expected given the program leadership role of most representatives and their limited exposure to current information sharing technology. The limited knowledge of technological capabilities demonstrated by participants undoubtedly restricted their envisioning of the purposes and value of the proposed system. Enriching the program participant knowledge of modern technical applications is part of the evolving system development process.

Level of Interest in Developing and Participating in a Shared System

In this initial phase of implementing a shared decision support system the level of interest expressed and demonstrated by the representative stakeholders is a critical factor. ***The willingness of program and information system leaders to actively participate in the key phases of the project, dedicate resources to the project, and articulate a strong sponsorship position supporting the project is essential.*** The structured interviews and stakeholder meetings provided opportunities for participating agencies and their key staff to express their interest and support for the proposed information- sharing system.

Executive

Executive leaders are identified as individuals with administrative responsibility for agencies with multiple programs. They have overall responsibility for agency policy, program operations, financial management, and coordination of agency programs.

The executive leaders consistently articulated and demonstrated a very high level of interest in the Shared Decision Support System. Their interest was expressed through a variety of actions including direct participation in stakeholder meetings and interviews, dedication of key resources to the interview process, commitment of agency support to the development of an interagency information sharing system, and sponsorship of an internal information sharing system within their agency.

Program Management

Program managers are identified as individuals with overall responsibility for a child and family service program. The program they oversee may be part of a larger agency or they may be independent.

Program managers consistently participated in the structured interviews. They dedicated substantial time to the interview process and prepared extensive supporting information about their services to assist the consultants better understand their program. They uniformly expressed a high level of interest in the development of an information sharing system and actively participated in identifying the potential value and benefits a system would provide for their service program.

While expressing and demonstrating a high level of interest the program manager representatives remained somewhat tentative about committing their program and their resources to the project. This may reflect their evolving understanding of the potential capabilities of a system and their focus on intra-program rather than inter-program communications.

Capacity to Support System Development and Implementation

It is essential that participating child and family service organizations have the capacity to support the design and implementation of the shared decision support system. Critical to achieving this is the following:

- › The capability of the representative stakeholders to engage and guide their organizations in the process
- › The capacity of the participating organizations to support and participate in a modern information sharing system
- › Each participant program's realization of potential value from the system

In short, participating child and family programs must have representatives with the authority to commit to the Shared Decision Support System, the technical capabilities to support it, and an organizational purpose for engaging in it.

Authority

Participating child and family programs must have a project representative who has the authority to commit the organization to the design and implementation of the shared decision support system. They must have the authority to form partnerships with other agencies, dedicate resources and form policy.

The participating stakeholders in the Shared Decision Support System Feasibility Project include the top tier of child and family service executives and managers. They have the authority to engage their organizations in the system design and development process. They also have the ability to dedicate resources and to enter into partnerships with other organizations. The early engagement of the highest level of child and family program leaders is a positive indication of the level of support for this project.

The San Joaquin County Information Services Division has also been active in the project, attending stakeholder meetings and providing an interview. Their participation further expands the level of authority engaged in the project.

Technical Environment

The technical information environment of many of the participant programs appears to be in an evolutionary stage. They are transitioning from a paper-based information system to an electronic system and are maintaining both systems. This transitional environment will provide challenges to programs that attempt to enter into a sharing system at the same time they are trying to complete conversion of their programs to more modern information systems.

Most programs report that their staff is technology capable. They do express concerns about the capacity of their information systems staff to support an additional technology project. Stakeholders also expressed concerns about the capacity of their current infrastructure to support an information sharing system. Requirements for additional resources or equipment to implement a shared decision support solution were viewed as problematic due to limited financial resources.

Some of the program environments are relatively sophisticated in their application of electronic information systems. A few are already engaged in the development of inter-program information sharing systems. They represent the minority of participating child and family programs, however.

In addition to the challenges of operating within an environment that is still transitioning to fully electronic systems the interface with state information systems will need to be addressed. A substantial number of the participating programs operate programs in partnership with the State of California and the federal government. Many of these programs use a state operated information system for the storage and maintenance of their information.

Business Value

A preliminary assessment of the types of information participating programs collect and apply in their business processes suggest substantial value to sharing of information. There is a large pool of information about children and families that is collected by many different programs. Many of these programs serve the same families and redundantly collect the same or similar information. Maintaining and updating redundant information consumes duplicate resources in multiple organizations. Common applications are also applied to redundant information by several different programs, again duplicating effort to achieve the same result.






Many programs provide different services to shared children and family clients. The services of each of the programs may include efforts that would be more effective if coordinated or integrated with other service programs. This is seen as particularly possible for programs that provide health care or other intervention services.

Although most participant programs appear to be able to gain considerable value from exchanging information there are a few that may not achieve appreciable value from an information sharing system. The value of sharing information needs to be assessed for each prospective program and not assumed.

Summary of Findings

The readiness factors discussed above are summarized in the table below.

Table 2-5

Readiness Factor	Score	Comments
Stakeholder Representation		Participating stakeholders represent the community of child and family service programs and providers in the County
Clarity of Concept		While there was substantial uniformity in the essential purpose of the System, there were widely varying interpretations of content, application and technical requirements
Level of Interest		A high level of interest was consistently expressed during interviews. However, this level of interest must be sustained in order to provide the appropriate sponsorship and commitment.
Capacity to Support (Authority and Business Value)		Participating child and family programs must have a project representative who has the authority to commit the organization, to form the necessary partnerships, to dedicate resources and to form policy
Capacity to Support (Technical Environment)		The IT environment for many participant programs appears to be evolving. This presents challenges in terms of resource availability and infrastructure capacity. Interfaces to the state-wide systems will need to be addressed



Indicates strong readiness



Indicates a moderate level of readiness



Indicates a potential risk

Based on the analysis of information collected through interviews with participant child and family service programs, stakeholder meetings, consultation with the executive leaders of the Commission and the Data Warehouse Steering Committee, and independent research, the child and family service programs of San Joaquin County demonstrate the capacity and interest to support continuation a shared decision support system effort. The key index measures of stakeholder representation, stakeholder interest, stakeholder understanding of project purpose and benefit all meet, and most exceed, the required threshold level.

However, as highlighted in this readiness assessment, and given the current economic environment in the public sector with significant budget concerns, the capacity to fully implement a shared decision support system will present challenges to the Commission. Mitigation recommendations and implementation considerations to address these concerns are discussed in Chapter 5.0 – *Implementation Recommendations*.

3.0 REQUIREMENTS

The shared decision support system envisioned by the Commission would connect and support the existing programs and services for children and families in San Joaquin County. The existing programs provide an array of resources, services and interventions that support the health, safety and financial well-being of families and foster the development of children. Programs are delivered across a broad spectrum of health care, cash assistance, education, child welfare, child protective services, early childhood and prenatal programs.

The breadth of the family service system is matched by the complexity of the eligibility and reporting requirements for the many means tested programs. Families frequently receive services from multiple programs and are often required to apply for each service separately. Participation in multiple programs creates challenges for the recipient family and the service delivery system. Designing and implementing a cohesive set of services that effectively address the family as a whole are difficult. The difficulty is often exacerbated by program and agency boundaries that separate services, create barriers to coherent services, and challenge the ability of service providers to communicate and coordinate services for a shared child or family.

Improving the coordination of services to families and children is a priority for the Commission. As discussed in previous chapters, improved coordination of resources and services to children and families could be achieved by increasing communication between service providers. Today's computer technology provides the opportunity to enhance communication between providers, facilitate information sharing and improve coordination of services.

This chapter discusses the goals and objectives of a shared decision support system, as articulated by the project participants through numerous interviews and work sessions. A conceptual model and requirements are also discussed to provide a picture of future functionality and features.

OPPORTUNITY ANALYSIS

Based on interviews, work sessions, and the baseline analysis, the following have been identified by the project participants as problems/opportunities to be addressed by a shared decision support system.

- › **Multiple Systems/Data Redundancy:** Automated systems across the children and family agencies contain redundant information not only between automated and manual files but also across agencies. A mechanism to exchange or share information would not only help address the inefficiency of redundant data capture but also improve coordination of resources and service delivery activities – facilitating improved collaboration between agencies and programs.

- › **Weak Data Sharing Capabilities:** The current environment does not provide adequate capabilities to share data across agencies and often between programs within an agency. The children and family agencies of San Joaquin collectively represent a vast organization with its agencies, departments, and programs. All of which by mandate, operate very independently. This greatly increases the complexity and legalities associated with collaboration between agencies and program areas and the electronic exchange of data, particularly across agencies. The incompatible “islands of” technology across the County reflects the diverse and independent business culture, leading to a proliferation of incompatible data and systems.
- › **Improved Coordination:** The work of the County’s children and family agencies is vitally important – these agencies are responsible for enhancing the quality of life for children and families in San Joaquin County. The agency participants in the Shared Decision Support System Feasibility Project recognize that the needs of San Joaquin County children and families could be better addressed through improved coordination of resources and increased integration of services. The effectiveness of the existing service system could be enhanced by:
 - J ‣ Broader knowledge of a family’s needs
 - J ‣ Expanded awareness of available resources
 - J ‣ Coordinated delivery of services

The Commission believes that better coordination of resources and services to children and families could be achieved by increasing communication between service providers. They recognize that today’s computer technology provides the opportunity to enhance communication between providers, facilitate information sharing and improve coordination of services.

GOALS, OBJECTIVES AND ANTICIPATED BENEFITS

The following goals and objectives express the program participants’ collective thoughts about a shared decision support system for San Joaquin County.

Goals and Objectives

- › Enhance the well being of families and children with the integration of related information throughout San Joaquin County.
- › Promote information sharing and appropriate access to information while recognizing the privacy of families and independence of each agency.
- › Link information from diverse systems to create a single virtual system.
- › Share information with minimal impact to existing systems.
- › Maintain an infrastructure so that agencies control what information will be shared and to whom.
- › Become the foundation to the support decision making needs of the agencies providing services to children and families in San Joaquin County.
 - J ‣ Allow agency staff and management to use and focus their resources more efficiently

- J · Decrease the amount of duplicate data entry
- J · Allow access to new sources of information, in addition to new ways of looking at old information
- › · Provide consistent standardized information – information from one agency can be matched with information from another agency.
- › · Become an adaptive and resilient source of information to meet changing business needs (i.e. new questions that need to be asked or new data needs to be tracked).
- › · Ensure data confidentiality and security, including automatic checks and balances to regulate data content and access, as well as audit trails to track access.

Anticipated Benefits

The following is a summary of information gathered during this project related to “benefits expected of a shared decision support system”. These were identified through an analysis of the individual interviews, work sessions and the survey distributed to program participants.

- › · Improve resource awareness, identification, and referral to services
- › · Share or reduce duplication of commonly collected information
- › · Improve multidisciplinary/joint team treatment
- › · Improve case management
- › · Provide identification of other services
- › · Support program evaluation/planning

SHARED DECISION SUPPORT SYSTEM CONCEPTUAL MODEL

This section describes a conceptual model of a shared decision support system. This model provides a future portrait of a shared decision support system for the Commission.

Much like designing a home, the Commission and participating agencies are playing the role of a homebuilder as they begin the process of developing an agreed upon architectural drawing for the shared decision support system. The conceptual model presented here provides the Commission with a preliminary architectural drawing built around a framework of agency program and information needs. This high-level depiction will serve as a guidepost as the Commission and participating agencies launch the more detailed development phases of an implementation project. Much like deciding what type of lumber to use, the development phases will refine, provide more detail, improve and amend this high-level depiction.

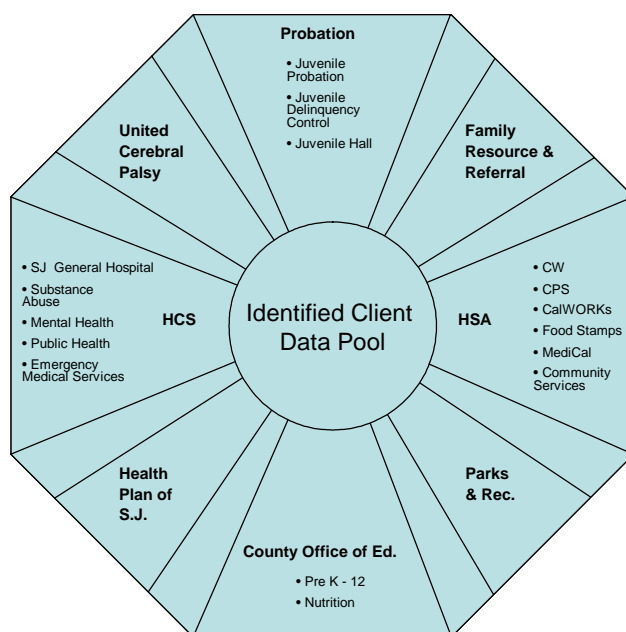
Conceptual Framework

Building on the analogy above, developing the framework within which to place the Shared Decision Support System is much like envisioning the design of a planned community. The mission of the community is clearly formed long before the construction

of any component. The goals and objectives are identified, the needed services and functions articulated, and the expected benefits to the builders and future owners clarified. These decisions will determine the configuration of the community, the placement of its components and the phasing of development.

We create a blueprint of how the “shared decision community” might be configured. We can agree that our mission is the improved well-being of children and families and the outcome we wish to achieve is coordination of services through increased information sharing using modern information tools. Our blueprint, shown in Figure 3-1 provides a framework to support these identified goals and functions. The shared decision “neighborhood” provides units for the programs which house services, agencies which house multiple programs, a pool that can “hold” information outside of a program or agency and that can be accessed by the programs, and pathways on which information can travel between programs as well as to and from the common pool.

Figure 3- 1



Having developed a blueprint to “house” and transport the information for the sharing system we need to consider the types of functions that programs would perform with “shared information” and the types of information required to support those functions. The functions were derived from the decisions, activities or functions that programs most frequently identified in the survey as wanting to be able to perform. The functions are identified in the matrix in Table 3-1.

Table 3- 1

Functions	Program Related Information		Child and Family Related Information				
	· Services · Eligibility	· Participation · Provider	· Evaluation · Needs Assessment	· Treatment · Intervention	· Response to Treatment	· Characteristics	· Identifying
Determine availability of Child and Family Services	X						
Match child and family needs to services available	X		X			X	
Conduct Program Evaluation Planning	X	X	X	X	X	X	
Utilize Service Referral/Application	X		X			X	
Determine Service Participation of Child/Family		X					X
Conduct Multi-disciplinary Treatment / Intervention Planning		X	X	X	X	X	X
Evaluate Services to Children		X	X	X	X	X	X

There are seven functions listed in the first column of the figure. The top row of the matrix in the figure represents the type of information required to support the identified functions. There are seven categories of information and these categories are referenced to the larger category of information about “Program” or about “Child/Family”. The “Program” category indicates that the information in the sub-category is information about the program while the “Child/Family” means that the sub-category information is information about the child or family client or service recipient. The functions relate to the categories of information as follows:

- › **Function 1- Determine Availability of Services:** What child and family services are available in San Joaquin County, where are they located, who is their target population? This also includes the function of providing other pertinent information about programs. This was identified as useful in improving case management, improving access to services for families, and believed to be usable and useful for families to access independently.

J **Information needed to answer Question 1:** Information about the available services and programs in the County

- › **Function 2- Match Needs to Services:** Programs would like a tool that automatically matches the characteristics and needs of client children and families to all available services in the County. The tool was identified as improving access to services, improving case management, and has the potential to be directly used by families to identify services and requirements. The function was identified as allowing the development of a simplified application for services.

J **Information needed to perform function 2:** Information about services available and information about the characteristics of the child and family

- › **Function 3 – Conduct Program Evaluation Planning:** Unidentified, disaggregated information about programs and services that allows evaluation of program performance for evaluation and planning purposes.

J **Information required to perform function 3:** Information about programs, participation in programs, needs for which services were provided, treatment

services, response to treatment and characteristics of children and families served.

- › **Function 4 – Utilize Referral Application.** The function is an automated service matching process that generates all services the family/child qualifies for by matching the defined family characteristics and needs to services that the family qualifies for or expresses a need to receive. The matching process is accomplished through a “universal application”.

The matching tool would be accessible to child and family service providers and can be run on behalf of the client during any application process or service delivery contact or site. All information about service programs the family/client qualifies for as well as application forms and materials that will need to be provided such as latest pay stub or Income tax return are noted to alert the applicant and allow gathering of information needed prior to the application appointment. An automatic appointment scheduler is optional if the client chooses to provide their identifying information for processing. The profile-matching tool would also be available to families at publicly accessible Commission kiosks, located at designated place or through any county or participating program family/child service site.

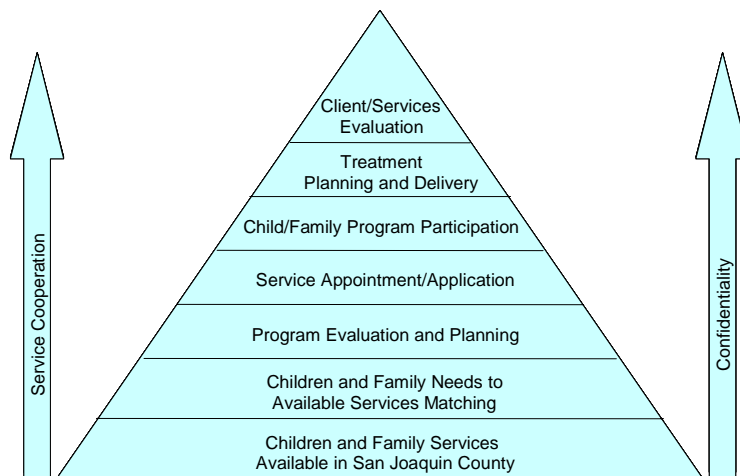
- J **Information required for Function 4:** Information about all child and family services and programs, the eligibility requirements, application form, that allow the applicant family to identify what they need to prepare for an application for the service. A description of needs or presenting problems are required to match to available services, and the characteristics information that drive much of the matching determination for means tested programs. It does not require identifying information
- › **Function 5 – Determine Service Participation.** Allows a service provider to be informed of additional services a client/family is receiving, or becomes enrolled in, and the provider of that service. Function is limited to information about service program and name and contact number for the provider.
 - J **Information Required for Function 5:** Requires information about the range of services the individual may be enrolled in or becomes enrolled in. Also requires information about the individual that allows unique identification of the individual to confirm that individual is the same as the one enrolled in the other program or service.
- › **Function 6 – Conduct Multi-disciplinary Treatment Planning:** Provides sharing of all information between the families’ or child’s service providers to allow multidisciplinary and multi-agency access to information on an ongoing manner to coordinate treatment planning and delivery of services.
 - J **Information Required for Function 6:** Requires all information about the family/child’s characteristics, evaluation, treatment, response to treatment and the providers of the client’s services from each program the family/child is receiving services from.

- >
J
Function 7- Service Evaluation: This function allows evaluation of multi agency or multi-program treatment services provided to family, on a family or child centered basis.

Information Required for Function 7: All information would be needed to support for cross agency, cross service evaluation, except service eligibility information.

The programs participating in the survey and the interviews identified functions that they believe would improve services and outcomes for children and families by sharing information. The functions are listed again in Figure 3-2 below. In this figure the functions are “stacked” in relation to the level of information about the child/family required to perform the function and to what degree that information reveals the identity or identifying information about the child/family.

Figure 3- 2



As indicated in this figure, there is a relation between functions that may improve service coordination and the sensitivity or confidentiality of the information being applied and shared to support the function. The illustration reveals that the sensitivity or confidentiality of information shared to support the functions at the top of the pyramid are substantial whereas the information required to support the functions at the bottom of the pyramid do not share the same level of confidentiality concerns.

Decisions about the design of the shared decision system will need to balance the benefit of shared information with the level of confidentiality involved in that sharing transaction.

Two points may be drawn from Figure 3-2 and the information/function matrix presented in Table 3-1. The first is that protection of highly confidential information needs to be addressed through the control of access and security of information. The second point is that there are many potential functions that could improve the coordination of services that do not require family/child-identifying information – these functions would not impact the confidentiality and security of information released or maintained for sharing.

GENERAL REQUIREMENTS

One of the most important aspects of the analysis undertaken for this study is the recognition that the solution cannot be static – the needs of the partnering agencies are continuously evolving and dynamic, as each agency continuously improves its service delivery. Thus the solution must never stop evolving: new requirements arise, management identifies new initiatives, new sources of data become available, laws and legislation may alter service delivery policy.

With this context, the following is a listing of high-level requirements for the shared decision support system. These requirements were identified through interviews, work sessions and meetings with project participants and the Commission.

General Requirements

- › The solution should have the flexibility to meet changing business needs.
- › The solution should be flexible enough to deal with business and organizational changes.
- › The solution should facilitate collaborative efforts between agencies and programs and multidisciplinary teams.
- › The solution should authenticate all users that access the system.
- › The solution should maintain confidentiality and security of its data.
- › The solution should maintain identifying information regarding participating programs (e.g., name, location, qualifications, etc.).
- › The solution should be able to categorize participating program services.
- › The solution should allow for the sharing of any electronic information between specifically identified parties that execute a legally allowable information-sharing contract.
- › The solution should allow agencies with such a contract to identify the data available for sharing (publish) and to request data from other agencies, as appropriate (subscribe).

Reporting

- › The solution should have the capability to report information in a variety of formats (e.g., electronic, hard copy, email, fax).
- › The solution should provide user-based query/ad hoc report capabilities. (Request just the information you need and organize it to your specifications.)
- › The solution should provide users with both summary and detailed reports.
- › The solution should provide users with the ability to drill-down to greater detail: client, service, date, geographic reference, etc.

- › The solution should have the ability to report on aggregated data concerning the recipient population, service and resource utilization, outcome performance, demographic projections, etc. The information should:
 - J Be specifically authorized for sharing via the system by a contributing agency
 - J Retain the identity of the contributing agency
 - J Remain under the control of the contributing agency
 - J Maintain its integrity from change, modification or forwarding unauthorized viewers
 - J Be revocable at any time by the contributing agency

Valid and Accurate Data

- › The solution should provide accurate (consistent, standardized) information to assist in the decision making process of participating agencies.
- › The solution should prohibit the unauthorized entry or manipulation of data.
- › The solution should provide a mechanism to reconcile similar data that does not match.
- › The solution should provide a mechanism to extract, translate, and cleanse source data.
- › The solution should maintain ownership and origin of information.
- › The solution must secure de-identified data to not allow the identification of an individual either directly or indirectly.

Usability/Accessibility

- › The solution should be consistent with the Commission's and County's strategic direction.
- › The solution provides easy, rapid sharing of files and information.
- › Report requests and online data viewing should be accessible from participating agency offices throughout the County and from remote field locations for authorized users.
- › The solution should utilize a user interface that is intuitive and will minimize the time required to training staff in its use.
- › The solution should comply with approved technology architecture standards.
- › The solution must be developed so that County IT staff can support it, if appropriate.

4.0 RECOMMENDATIONS

This chapter discusses a recommended approach to meeting the Commission’s needs for a shared decision support system. The recommended approach discussed in this chapter results from an analysis of business objectives and requirements, best practices, similar solutions implemented by other public sector agencies, and industry research. Specific implementation and “go forward” strategies are presented in *Chapter 5.0 – Implementation Recommendations*. Details regarding the recommended technical approach and preliminary conceptual data model can be found in Appendix C.

ALTERNATIVE EXAMPLES

The recent advances in technology have fundamentally transformed government, making it more accessible and ultimately more flexible and cost efficient. Technology advancements, e.g., the Internet, fast networks, telecommunication, specialized databases, are providing unprecedented opportunities connect in ways we never thought possible—and to provide analyses capabilities to strengthen the quality of services delivered to stakeholders, customers and constituents.

In particular, data warehouse technologies offer an excellent approach to meet the shared decision support needs of the Commission. Best practices have shown that data warehouse technologies enable data sharing across an organization to enable better business decisions. Data warehouses allow information that is spread across multiple databases to be placed in an electronic “warehouse” where staff can access and use the data more efficiently. Data warehouses provide online analytical processes, ad hoc querying, and standard reporting.

The following examples of data warehouses offer potential models for the Commission to consider in its implementation of a shared decision support system.

- › **Contra Costa County: C3 BIS** – Contra Costa County recently implemented a data warehouse solution that integrates data from three systems: Case Data System (CDS), Geographic Information System (GIS) and Child Welfare System/Case Management System (CWS/CMS). The scope of the data warehouse solution is to provide better reporting in support of CalWORKs processes. The County’s data warehouse is based on an Oracle platform and has significantly improved the County’s reporting capabilities relative to CalWORKs data, and improving the decision support capabilities.
- › **State of Pennsylvania: JNET** – Pennsylvania recently implemented a single network that connects the many pieces of the Commonwealth’s criminal justice system – JNET. It is used to link sixteen state agencies with criminal justice responsibilities, as well as the FBI, nineteen counties, select municipalities, and more than 540 district justices’ offices. JNET was architected to create a common online environment for sharing information. It “wraps around” existing systems and is not a separate stand-alone solution. Incompatible systems and databases are linked so that authorized

users can cross agency boundaries to query information on a specific person, notify authorized persons of specific events, transfer case file information and send secure e-mail.

- › **San Mateo County: SHARP** – San Mateo undertook a project to integrate data from disparate systems to enable the Human Services management team to make sound business decisions supported by the measures of Outcome Based Management and Budget (the County is implementing Outcome-Based Management to focus on achieving the outcomes and goals identified through the Board’s vision process and other community planning processes). The agency needed to analyze their organizational data to determine their current and on-going performance against these goals. Consequently, this solution is policy and management oriented, and not service delivery oriented. It integrates CDS, CWS, Job Training, and GIS data to support policy and management decision-making – it is not a service delivery oriented solution. The solution provides the county with an integrated view of HSA clients across multiple systems.
- › **Santa Clara County: PROMISE** – The County initiated its PROMISE data warehouse project to integrate three separate data mart projects: Mental Health, Cross Systems Evaluation and Probation, into one data warehouse solution. The project has been approached in phases, with each phase bringing onboard a specific data mart. The first phase focused on Mental Health with the Cross System Evaluation data comprising the second phase and Probation related data the third. This project is still underway with the County.

Lessons Learned from These Initiatives

The following common “lessons learned” themes are referenced by the various projects identified above. These themes are important considerations for the Commission.

- › Place the business goals and objectives at the center of the project – data warehouse projects should not be a technology project
- › Establish sponsorship and participation before project start to ensure advocacy and communication channels.
- › Ensure adequate staffing for the project team to include not only technology staff but also business analysts who understand the programs involved in the data warehouse.
- › Be flexible to accommodate for the unexpected delays, complications and changing requirements.
- › These can be expensive projects.
- › Ensure that all elements in the data warehouse answer some specific business question.
- › Build the data warehouse iteratively in short phases (three to six months) to provide early successes, sustain momentum and enthusiasm, and validate approach and scope.
- › Utilize external resources (consultants, vendors, etc.) to provide the needed expertise and to augment internal skills and competencies.

RECOMMENDED OVERALL APPROACH

It is recommended that the Commission implement the shared decision support capabilities through a data warehouse solution. A data warehouse is: “a single, central location containing a reconciled, merged and cleansed version of data extracted from a wide variety of operational systems”. In fact, data warehousing is the commonly accepted vehicle that drives decision support system implementations today.

Data warehouse technologies offer an excellent approach to meet the shared decision support needs of the Commission and the children and family agencies of the County. Best practices have shown that data warehouse technologies enable data sharing across an organization to enable better business decisions. Data warehouses allow information that is spread across multiple databases to be placed in an electronic “warehouse” where staff can access and use the data more efficiently. A data warehouse provides (1) the mechanism to support the Commission’s shared decision support system needs and (2) the ability to view the data electronically without changing it or exposing it to anyone without proper authority.

Data warehousing is the commonly accepted vehicle that drives decision support system implementations today. A data warehouse is: “a single, central location containing a reconciled, merged and cleansed version of data extracted from a wide variety of operational systems”.

There are two data warehouse implementation approaches for the Commission’s consideration that are explored in detail in Appendix C of this report: a centralized data warehouse or a virtual data warehouse. The primary difference is “where” the data is stored and “how” it is accessed.

1. A centralized, physical data warehouse is a single database of data that has been extracted from disparate databases, cleansed and integrated into a single data warehouse.
2. A virtual data warehouse is a solution where pointers and links are stored centrally and data remains in its original database or data source. With the advent of new technology, particularly the growth of the Web and data mining tools, the conventional method of storing data in a single, centralized data warehouse is being replaced with pointers and links to information. Simply put, a virtual data warehouse leaves the data in its original database and through a delivery mechanism called “publish and subscribe”, collects and provides data on request.

Appendix C of this document presents a detailed analysis of both of these data warehouse architectures. The appendix discusses the benefits and drawbacks of the different architectures, as well as a relative cost analysis of implementing both. The appendix also includes a recommended technical approach for the initial phase of a shared decision support system and a preliminary conceptual data model.

As outlined in the appendix, it is recommended that the Commission should initially build a virtual data warehouse. As data sharing agreements mature, capabilities grow,

“lessons learned” are discovered and organizational readiness is enhanced the Commission will be positioned to fully implement a centralized data warehouse.

The following are five scenarios illustrating the use of a centralized data warehouse in the context of delivering services to children and families in San Joaquin County.

- › A twenty-nine year old, single female and her three year old son moved from Los Angeles County to San Joaquin County six months ago. The female was employed as a ¾ time clerk at an AM/PM store in Stockton for the first five months of her stay in Stockton. She lost her job a month ago when the market cut back the number of employees. She is the sole provider for herself and her son. She has not received child support payments from her son’s father since she moved to San Joaquin County. She and her son live in an apartment in Stockton and she has depleted all of her savings and now is unable to provide for her and her son. She is now unable to pay the rent for the coming month and has no income. She has never applied for public assistance, has no health insurance coverage, and is facing certain eviction from her apartment, as she cannot pay the rent for the next month. A shared decision support system would allow an agency staff to determine eligibility and the range of services available to her.
- › A thirty five year old mother has brought her ten-year-old daughter to the Children’s Mental Health services. She complains that the daughter is having difficulty in school and at home. She is non-compliant with her mother’s supervision, acting out at home and in school. The girl has become withdrawn and is frequently waking up in the middle of the night with “bad dreams”. The girl is behaving “strangely” with the mother’s boyfriend who moved in with the girl and her mother about a year ago. The mother is receiving cash assistance payments through CalWORKs and is working part time at Mervyns. The mother is not sure if she has any health insurance. She is concerned about being able to pay for the mental health services but the teacher referred her to the mental health services and told her she “needed to get some help” for her daughter. The mother is unclear as to how serious the problems the daughter is having at school are or if she is getting counseling at school. The mother’s boyfriend did not want her to bring the daughter into the mental health services and says that “it is useless to go to those people, she just needs to know who is boss”. The mother thinks that her boyfriend may have had some “problems with the law” but she is not sure about that. The share decision support system, structured with the conceptual model above would allow staff from Mental Health to help identify eligibility for services and assistance, and if appropriate determine if there are any risks (criminal history) with the boyfriend.
- › The County is concerned about the increasing number of uninsured children who are coming to the San Joaquin General Hospital emergency room. Many of these children have received no primary health care services and come to the emergency room with conditions, such as severe ear infections and dental disease, that could have been prevented with appropriate primary care. Many of these children are eligible for Medi-Cal or Healthy Families. The hospital gets the qualifying children enrolled in these health care coverage programs after they have provided treatment but they would like to see low income children enrolled in these programs before they need

emergency services. The County would like to identify uninsured, low-income families with children who qualify for Medi-Cal and Healthy Families and get them enrolled in these programs sooner. The County would also like to know what percentage of qualifying children are enrolled in Medi-Cal and Healthy Families and if that percentage is going up or down. The shared decision support system would provide the needed reporting and analysis to identify the uninsured, low-income families who are qualified for other services and programs. The solution would provide a mechanism for trend analysis and comparisons against historical information.

- › A sixteen-year old female is injured in a single car automobile accident and brought to the San Joaquin General Hospital. Fortunately her injuries were minimal but it is determined that she was three months pregnant. She was also found to have a blood alcohol level of .09 and traces of cocaine. The hospital is unable to locate the mother of this patient. The patient, who lives with her mother in an apartment in Stockton, has not seen her mother in over two weeks and does not know where her mother has gone. She does know that her mother receives cash assistance but knows little else about the amount or source of the assistance. The patient was not aware she was pregnant and does not know what she will do about her pregnancy. With this solution, an emergency room intake staff would be able to refer the patient to critical teen-age pregnancy services offered through Public Health, in addition to verifying information about the mother and any enrolled assistance programs. The County Office of Education would like to evaluate the effectiveness of the teen pregnancy education and prevention program it has been running for the last three years. It is unclear how to gather and analyze information about the impact of the program. With the shared decision support system this analysis becomes easy to undertake.

5.0 IMPLEMENTATION RECOMMENDATIONS

Implementing an information sharing solution within a single agency can be a complicated and risky project; implementing it across many different agencies – each with different missions, systems, and cultures – is quite another. The opportunity for issues to arise that could impede the success of a collaborative project in a cross-agency environment is huge.

The readiness assessment discussed in *Chapter 2.0 – Baseline Analysis*, describe the readiness capacity of the Commission and County to launch a shared decision support system implementation project. This chapter discusses implementation recommendations to mitigate not only the risks inherent to a cross agency technology project, but also to mitigate specific readiness shortcomings of San Joaquin.

IMPLEMENTATION APPROACHES

There are many ways that the Commission could consider supporting the improved coordination of child and family services through the implementation of a virtual data warehouse. This section discusses three specific options for the Commission’s consideration:

1. Focus on building intra-agency sharing capacity within large multi-program areas to establish a foundation for cross agency sharing of information.
2. Build information sharing capabilities (applications) for functions that have minimal implications on the confidentiality of information.
3. Build information sharing capabilities for programs that contract with the Commission.

Each of these is described below.

The first approach is based on an analysis of the framework of participating programs illustrated in Figure 3-1. As indicated in the figure, a substantial portion of the child and family services are provided through the four large agencies within the county. Three of those agencies, HSA, HCS, and Probation are county-operated. The fourth is the County Office of Education (COE), which is operated under a separate Board. The Commission could encourage the development of a shared decisions support system within HSA and COE and the completion of the HCS system through funding support.

Phasing the implementation of a shared decision support system by building intra-agency sharing capacity within each of the large multi-program agencies would promote information sharing and service within these programs while preparing them to be connected to each other and the other child and family services in the future. Under this approach, the Commission would support the building of information sharing capability within HSA. This would connect the large social services, child welfare, child protective services and Medi-Cal. Intra-agency sharing within HCS would facilitate the

communication between the San Joaquin General Hospital, Children's Mental Health, Office of Substance Abuse, and the multiple Public Health programs where many of the early childhood and prenatal, teen parenting programs reside.

The second approach would be to implement information sharing activities that support the functions described through this study that do not require unique identification of the client family or child but which do contribute to improved coordination. These functions include capabilities such as the following:

- › · A service and referral function including the automated matching of family needs to services
- › · Bulletin board of service offering profiles, location and operating hours
- › · Online appointments

This could also include the sharing of unidentified information and aggregated data that promotes program evaluation and collaboration at a program level, along with other sharing activities that do not require the level of security and risk associated with uniquely identified information. Developing information sharing capabilities with these functions would allow agencies to develop sharing relationships and encourage new patterns of relating in a collaborative manner.

The third approach is to construct information sharing capabilities for programs that contract with the Commission. This might allow a smaller and controlled sample to develop a shared decision support system that can appropriately build in the necessary security, access controls, training and testing to assure the quality of the system. The Outcomes Collection, Evaluation and Reporting Services (OCERS) system currently used by the Commission demonstrates the capability to exchange data via an online (web-based) system. Expanding on the OCERS model is an approach that provides an opportunity for the Commission to implement a client/family level cross- program evaluation structure as well as program level evaluation of contractor services.

Each of these implementation approaches is consistent with recommendations suggested in Chapter 4.0 from organizations that have implemented data warehouse solutions, and they are consistent with best practices. ***The overriding theme is to start small and build incrementally.*** It is recommended that the Commission approach this effort with the second approach: build data sharing applications that do not require complicated confidentiality and data sharing arrangements. This will allow the Commission to begin to establish a data warehouse and to build capacity for a large centralized data warehouse – it allows the Commission to achieve success within a manageable scope before attempting a significantly larger multi-agency implementation effort.

Confidentiality of individually identifiable information presents the greatest challenges to a uniform shared decision support system for San Joaquin County children and family services. As discussed in this report, those functions that require the identity of the child or family may only be accomplished when the authorization of the client is given or

statutory provisions allow for the sharing of such identified information without the authorization of the client.

While there are avenues, such as child abuse and neglect, juvenile corrections and direct providers of health care services to an individual, that allow the sharing of identified individual information without authorization, there is no broad reaching provision that allows the sharing of individually identifiable information between child and family service providers. There are, however, many functions that a shared information system could support that do not require individually identifiable information. These functions formed the basis of the recommendation of “*start small and build incrementally*” by building data sharing applications that do not require complicated confidentiality and data sharing arrangements.

Under this recommended approach, functions uniformly identified by the participant service agencies as useful to improving the accessibility and quality of services to children and families could be implemented. Specifically, the implementation recommendation is to build the following six applications on the virtual data warehouse:

1. Post information about all services and resources available to children and families in San Joaquin County.
2. Post information about the content, location, contact and required entry qualifications for the available services.
3. Provide an electronic “universal services application” that matches the child/family needs and eligibility parameters to the services within the County to generate a profile of available services to support and assist the applicant child/family.
4. Provide the ability to transmit an appointment application to specific services if the client wishes to authorize the submission and transmittal of individually identifying information.
5. Provide a referral tool to assist service providers and families in understanding the array of services and resources that may be available, and to promote easy access to those services.
6. Provide a common site to communicate aggregated or de-identified information about service demand, utilization rates, and other indicators useful to providers of child and family services in planning and evaluating their services.

In addition to providing a system to directly assist children and families in identifying and accessing services, this recommendation would promote the development of broad interagency participation and ownership:

- › All child and family service providers would work together to form the content and maintain updated information on the system. This would form the basis for beginning a broad and inclusive interagency group dedicated to a common information system for child and family services.

- › · The newly formed interagency information coalition would begin to establish organizational rules, system ownership and identification of partner agency responsibilities.
- › · The applications would allow the demonstration of interagency coordination and system maintenance and set the occasion for a shared decision system governance structure.
- › · The applications would allow for the submission and transmittal of confidential information if authorized by the applicant client. This would allow the system to demonstrate its security provisions and build trust that a shared system may adequately protect highly sensitive information.
- › · The recommendation allows for the future development of more extensive information sharing opportunities through a centralized data warehouse.

In summary, the recommended strategy allows the Commission to (1) support the development of an information sharing system that would rapidly promote access to needed and available services for children and families, (2) respond to a need identified by a broad range of child and family service agencies within the community, and (3) support the development of a broad interagency coalition to own and govern the shared information system. This seems to be achievable within the limitations of confidentiality, the available resources of the child and family service agencies, and the variances in technology environments across agencies.

IMPLEMENTATION CONSIDERATIONS

The following are considerations for the Commission to address the risks and readiness shortcomings as discussed in *Chapter 2.0 – Baseline Analysis*.

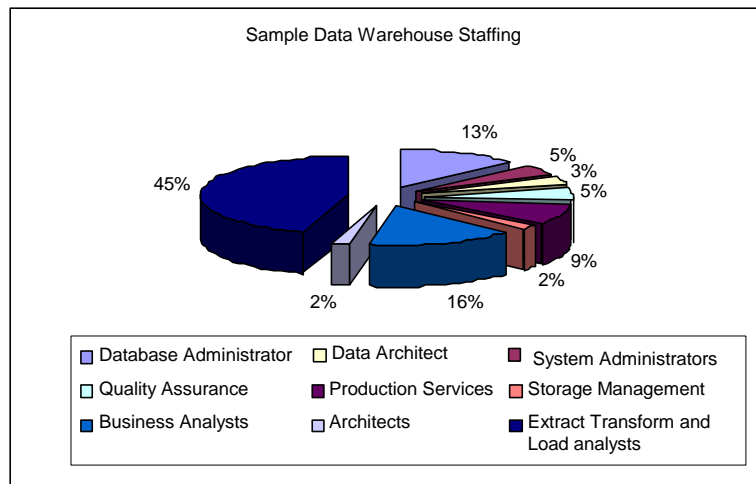
- › · ***Implement a governance structure that supports collaboration and joint-agency decision-making.*** A significant challenge with multi-agency data sharing projects is establishing and maintaining a focus on the same end goals from the diverse agencies. To overcome this, sponsorship and vision must be clearly communicated from County and Commission leadership.

An enduring governance structure for the shared decision support system implementation project needs to be put in place as an essential foundation for success. This governance structure needs to include elements of the following:

- J · Executive sponsorship: responsible for providing strategic, policy, budget, and project oversight. It has the authority to dedicate resources and commit funding. This element provides the leadership to overcome the cross agency hurdles that are inevitable in a government environment.
- J · Coalition building: provides tactical planning and project implementation oversight. It is charged with developing a tactical plan for the deployment of functionality and information-sharing requirements. As “owners” of the collaborative effort, they work together toward the common goal; as agency representatives, they build support within their agencies.

- J · Program management: responsible for day-to-day project, contract and office management. It should direct the actual implementation of the project.
- › · ***Gain participating agency buy-in.*** Public agencies in general are understandably protective of their information technology, business processes, and data. These are the primary tools each organization has developed to support its own, unique mission. This is further complicated by the very nature of business of the children and family service agencies within the County. The recommended approach for the shared decision support system (virtual data warehouse) should circumvent the inevitable resistance to centralization by enabling agencies to share information without losing control of it.
- › · ***Establish fail-proof communication mechanisms*** to facilitate inter and intra-agency understanding of project sponsorship, goals, objectives and progress.
 - J · Create team liaison relationships with each agency
 - J · Prepare regular project reports
 - J · Post status reports online for authorized users
 - J · Reach out to high-level executives on a regular basis
 - J · Make use of the County's intranet to share information
- › · ***Ensure the privacy and integrity of information.*** A significant barrier to information sharing relates to concerns about the privacy, security and confidentiality of the data. Modern technology will allow the Commission to build a secure environment with the use of firewalls, digital certificates, encryption, intrusion detection, etc. However, policy and perhaps statutory accommodations will need to be undertaken to address confidentiality issues. As the Commission is well aware through their work, the work of other Children and Families Commissions and the State Commission, addressing and balancing system improvements with confidentiality is a complex task that must receive thorough consideration. Health Insurance Portability and Accountability Act (HIPAA) Privacy and Security requirements have added a new set of considerations to the protection and sharing of individually identifiable health care information that impacts many children and family services.
- › · ***Plan for the staffing requirements of the implementation project.*** Gartner Group¹, a leading industry research organization, suggests the following allocation of staff skills and roles for a data warehouse implementation project (in some cases, more than one role can be filled by a single position).

¹ Gartner Group, Data Warehouse Total Cost of Ownership. 2002 Gartner Inc.



The Commission and the County will need to ensure that the roles and skills sets are available and dedicated to the project, from either internal County sources or outsourced. These resources will need to be dedicated full time to the effort.

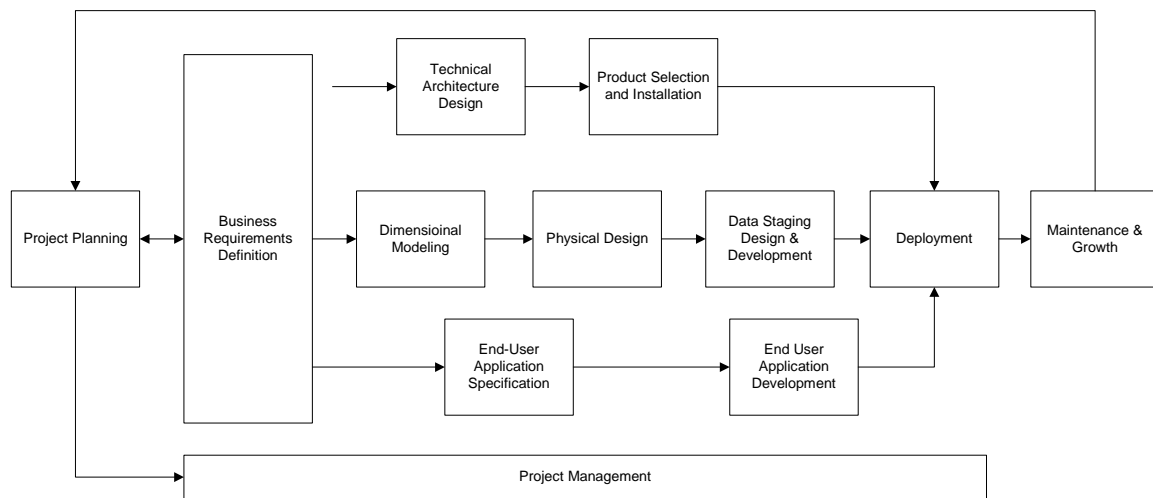
Additional implementation factors for the Commission's consideration include the following:

- > · A data warehouse is not something bought off the shelf as a united whole.
- > · Building a data warehouse requires using a variety of technology components "glued" together, i.e., database management system; extract, transform, and load tools; data marts; metadata tools; and business intelligence suites.
- > · New technology products are entering the market at a rapid pace, making it difficult to estimate costs and identify products early in the implementation effort.
- > · A significant portion of implementation costs will most likely be for personnel to implement the solution and to integrate the various products.

IMPLEMENTATION PLAN

The following implementation plan is based on best practices and research on industry trends. Figure 5-1 on the next page illustrates a recommended implementation plan. Each component is briefly explained below. This implementation plan is at a high level of detail to accommodate any of the three iterative implementation approaches discussed above. Essentially each implementation approach, and the iterative phases within each implementation approach, could follow the same implementation plan described below.

Caption 5-1 Recommended Implementation Plan.



- › Project Planning – Prior to launching the actual implementation project, specific project planning activities should take place. This includes the following important mitigation recommendations discussed above:
 - J Establish the governance structure and charter an executive sponsors committee, a coalition steering committee and a project team
 - J Establish communication mechanisms
 - J Determine resource requirements
 - J Commit the resources and funding
 - J Establish the project management office
 - J Identify and gain concurrence on success criteria and performance measures of the shared decision support system.

These activities should begin immediately in order to leverage the existing enthusiasm and interest in the project.

- › Business Requirements Definition – It is at this task that it is determined what data must be available in the data warehouse, how it is organized, and how it can be accessed. Business requirements will significantly impact the technical design and architecture of the shared decision support system. Best practices consistently state the importance of business requirements definition as the driver of all technology related tasks in a data ware implementation project. Additionally, deployment, maintenance and growth approaches are based on an agreed upon definition of business requirements.
- › Dimensional Modeling – Dimensional modeling results in a logical design from which the physical design and approach for “extraction, transformation, and load” is defined. The results of this task provide estimates for the central hub or database. Essentially dimensional modeling is a technique inherent to data warehouse design and implementation. The conceptual data model presented in *Appendix C – Potential Solution Architectures*, is based on the theory and approaches of dimensional modeling. It is during this task that the data modelers, data warehouse architects and

database administrators (DBA's) apply rigorous modeling techniques to develop a logical data model to meet the Commission's shared decision support system needs. Additionally source data, data ownership, data providers, and selection criteria are defined.

- › Technical Architecture Design – provides the detailed technical specifications, or blueprint for the system. Designing the technical architecture involves identifying as many of the issues and performance requirements as possible and building the hardware and system components that can handle those issues. The following should result from this effort:
 - J Data acquisition design
 - J Data access and delivery
 - J Technical architecture
 - J Security Plan
- › Physical Design – this task turns the logical design resulting from the dimensional modeling task into a physical database. The Commission will find that the details related to the physical design efforts are all related to the chosen software and hardware products and the logical design of the shared decision support system (data volumes, topology selected, usage patterns, etc.). The outcome of this task is the actual database that supports the Commission's solution.
- › End User Application Specification and End User Application Development – are tasks that result in the applications that support the actual use of the data warehouse by the many different users across the County. These applications include applications that support access and support reporting, analysis and business intelligence.
- › Deployment – this task is the convergence of technology, data and applications on the agencies' desks, along with the necessary training and user support structure. Successful deployment of the shared decision support system requires thoughtful planning, change management and education.
- › Maintenance and Growth – this is the critical task where the Commission must (1) evaluate the success of the phase or iteration that was implemented, (2) determine the "go forward" strategy for the next iteration, and (3) assess technical performance and capacity issues. The results of this task loop back into the project-planning task as the Commission prepares for the next phase of implementation.

LEVEL OF EFFORT ESTIMATES

Table 5-1, on the next page, presents high-level estimates to implement the following six functions that were described earlier in this chapter:

- › · Posting of information about services and resources available to children and families in San Joaquin County.
- › · Posting of information about the content, location, contact and required entry qualifications for the available services.
- › · “Universal services application” that matches the child/family needs and eligibility parameters to the services within the County.
- › · Transmission of appointment applications to specific services (with client authorization).
- › · Online tool to assist service providers and families in understanding the array of services and resources that may be available, and to promote easy access to those services.
- › · A common site to communicate aggregated or de-identified information about service demand, utilization rates, and other indicators useful to providers of child and family services in planning and evaluating their services.

As illustrated by the table on the next page, these functions provide early value to the Commission and its partner agencies, with minimal investment. More importantly, these applications and the investment made in hardware, software and staff, will be critical components of realizing the longer-term goal of a centralized data warehouse.

Table 5-1

Function	Level of Effort Estimates		
	Hours	Effort Days	Cost
1. Online service profiles	657.33	82.17	\$62,447
2. Online program operational data (hours, location, etc)	430.67	53.83	\$40,913
3. Universal application	2,441.33	305.17	\$231,927
4. Electronic appointment transmission	682.00	85.25	\$64,790
5. Online referral tool	403.33	50.42	\$38,317
6. Reporting tool for de-identified information	868.00	108.50	\$82,460
Total	5,482.67	685.33	\$520,853

While each of these functions provides discrete capabilities, there are certain economies of scale that can be realized from each subsequent implementation – collectively these functions build capacity and a foundation for broader capabilities. The cost estimates presented in the table above assume a single implementation. However, if the

Commission were to approach the implementations collectively, cost and level of effort benefits could potentially be realized. The table on the next page illustrates the potential benefit of combined implementation efforts.

Table 5-2

Function	Level of Effort Estimate		
	Hours	Effort Days	Cost
1, 2, and 5: Online service/program profile and referral tool	1215.33	151.92	\$115,457
3.Universal application	2441.33	305.17	\$231,927
4. Electronic appointment transmission	682.00	85.25	\$64,790
6. Reporting tool for de-identified information	868.00	108.50	\$82,460
Total	5,206.67	650.83	\$494,633

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	County Office of Education
Description:	To provide the guidance and resources necessary to ensure an environment conducive to learning

Agency Detail		Service Profile:	15 school districts in the County (6 are unified); Joint powers of authority for infrastructure technology for districts (except Lodi and Stockton)
Mission:	Regional agency whose mission is to provide educational leadership, resources, and service to assist school districts to be effective facilities of learning for all pupils.		
<p>Record Policies</p> <p>Informal <input type="checkbox"/> No</p> <p>Formal <input type="checkbox"/> No</p> <p>Governed by Fed/State Regs <input type="checkbox"/> Yes</p> <p>Governed by Funding Source <input type="checkbox"/> Yes</p>		<p>Eligibility Criteria</p> <p>Income Guidelines <input type="checkbox"/> No</p> <p>Means Tested <input type="checkbox"/> No</p> <p>County Resident <input type="checkbox"/> No</p> <p>Other <input type="checkbox"/> No</p>	<p>Entry to Service: n/a</p> <p>Governance: Board</p>

Shared Data Warehouse Consideration	
Benefits to the Agency:	better school readiness and smoothing the transition between preschools and kindergarten; target outreach to community and families; address mobility issues and predicting school attendance; provide information on connecting children to programs and services
Information to share:	information on children and families to better understand the issues impacting children; identifying information; referral information
Obstacles:	confidentiality; agency willingness to deal with the consent issues; resource availability to participate; technology readiness; sponsorship to mandate compliance with standards
Ways to Mitigate:	initial focus should be on children and agencies that deal with them - things that will help deal with children more effectively and to create positive outcomes in children services; need agreements on how data will be used; sponsorship
Other agency benefits:	provide information on connecting children to programs and services

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	Health Care Services	Public Health Services - Adolescent Programs
Description:	A home visiting case management program for pregnant and parenting teens and a pregnancy prevention program for their siblings	

Agency Detail		Service Profile: Adolescent Family Life program, CalLearn, Minor Parent Program, Sibling Program
Mission:	To support pregnant and parenting teens by helping with academic and vocational education, nutrition, parenting and health life choices.	
<p>Record Policies</p> <p>Informal <input type="checkbox"/> No</p> <p>Formal <input type="checkbox"/> No</p> <p>Governed by Fed/State Regs <input type="checkbox"/> Yes</p> <p>Governed by Funding Source <input type="checkbox"/> Yes</p>		<p>Eligibility Criteria</p> <p>Income Guidelines <input type="checkbox"/> No</p> <p>Means Tested <input type="checkbox"/> No</p> <p>County Resident <input type="checkbox"/> Yes</p> <p>Other <input type="checkbox"/> No</p>
		<p>Entry to Service: voluntary</p> <p>Governance: County</p>

Shared Data Warehouse Consideration	
Benefits to the Agency:	<p>understanding of full range of services available in the County; ability to locate potential clients; better referral into Adolescent programs; better able to address client issues such as housing options, transportation, nutrition</p>
Information to share:	immunization records; contact information
Obstacles:	confidentiality issues when serving clients who are minors
Ways to Mitigate:	Not discussed
Other agency benefits:	Better able to refer clients to other services and programs

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	City of Stockton	Parks and Recreation
Description:	provides a variety of recreational and community programs, serving approximately 275,000+ citizens residing in the incorporated and unincorporated areas within San Joaquin County	

Agency Detail		Service Profile:
Mission:	Creating community through people, parks and programs	camps; after school programs; child care/support programs funded by CalWORKs; summer food program; food for thought program; ball diamonds; museums; rental facilities; youth and adult recreation and sport instructional classes; swimming pools
<p>Record Policies</p> <p>Informal <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Formal <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Governed by Fed/State Regs <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Governed by Funding Source <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>		<p>Eligibility Criteria</p> <p>Income Guidelines <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Means Tested <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>County Resident <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Other <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
		<p>Entry to Service: voluntary</p> <p>Governance: City</p>

Shared Data Warehouse Consideration		
Benefits to the Agency:	better marketing of Parks and Rec's programs and services, since these often change seasonally and annually	Information to share: what services or programs children are receiving; some aggregate information such as number of children with medical insurance
		Obstacles: resources and funding to participate
Other agency benefits:	communication vehicle for program awareness; better fraud detection/follow-up information	Ways to Mitigate: avoid duplication of effort; ensure that agency participation is reciprocal

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	Health Care Services	Public Health - Children's Medical Services
Description:	California Children's Services is a statewide program that arranges, directs and pays for medical care, equipment and rehabilitation services for eligible children; Medical Therapy Program provides physical and occupational therapy services through a cooperative effort between the state, county and local school districts	

Agency Detail		Service Profile: For CCS eligible clients, services include diagnostic services, treatment, medical case management, special care centers and medical therapy																				
Mission: See program description																						
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: left;"><u>Record Policies</u></th> <th colspan="2" style="text-align: left;"><u>Eligibility Criteria</u></th> </tr> <tr> <td style="width: 50%;">Informal</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/> No</td> <td style="width: 50%;">Income Guidelines</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/> Yes</td> </tr> <tr> <td>Formal</td> <td style="text-align: center;"><input type="checkbox"/> No</td> <td>Means Tested</td> <td style="text-align: center;"><input type="checkbox"/> No</td> </tr> <tr> <td>Governed by Fed/State Regs</td> <td style="text-align: center;"><input type="checkbox"/> Yes</td> <td>County Resident</td> <td style="text-align: center;"><input type="checkbox"/> Yes</td> </tr> <tr> <td>Governed by Funding Source</td> <td style="text-align: center;"><input type="checkbox"/> Yes</td> <td>Other</td> <td style="text-align: center;"><input type="checkbox"/> Yes</td> </tr> </table>		<u>Record Policies</u>		<u>Eligibility Criteria</u>		Informal	<input type="checkbox"/> No	Income Guidelines	<input type="checkbox"/> Yes	Formal	<input type="checkbox"/> No	Means Tested	<input type="checkbox"/> No	Governed by Fed/State Regs	<input type="checkbox"/> Yes	County Resident	<input type="checkbox"/> Yes	Governed by Funding Source	<input type="checkbox"/> Yes	Other	<input type="checkbox"/> Yes	Entry to Service: voluntary Governance: County
<u>Record Policies</u>		<u>Eligibility Criteria</u>																				
Informal	<input type="checkbox"/> No	Income Guidelines	<input type="checkbox"/> Yes																			
Formal	<input type="checkbox"/> No	Means Tested	<input type="checkbox"/> No																			
Governed by Fed/State Regs	<input type="checkbox"/> Yes	County Resident	<input type="checkbox"/> Yes																			
Governed by Funding Source	<input type="checkbox"/> Yes	Other	<input type="checkbox"/> Yes																			

Shared Data Warehouse Consideration		
Benefits to the Agency:	Assist in the referral process; ability to more easily identify a client's social worker; understanding of who and what type of service is being received by a client; increasing awareness of agencies on the type of services offered; maximizing the sharing of information for treatment purposes	Information to share: School that a child is attending (district and school nurses) Obstacles: Health Information Portability & Accountability Act; confidentiality - CCS operates under a medical model, which most other agencies do not - need to be sensitive to the level of confidentiality required Ways to Mitigate: understand benefit versus level of effort; pilot a feature, capability or subset of the overall solution
Other agency benefits:	knowledge about other agencies involved with a client's care; tracking families for follow-up	

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	Family Resource and Referral Center
Description:	Primary focus is quality care for children and technical assistance to those working with children and families. It provides a clearinghouse for information on child care services, parenting, nutrition, and child safety. It provides child care referrals to all parents in San Joaquin County and administers child care and nutritional resources; conducts workshops in effective practices of child rearing, child care, and child safety.

Agency Detail		Service Profile:	Referrals to licensed child care in the county; subsidized child care programs; USDA child care food program; parenting and care provider resources and library; success by six programs
Mission:	Provides direct services, information, training and advocacy to enhance child care and family well-being in San Joaquin County		
<p>Record Policies</p> <p>Informal <input type="checkbox"/> No</p> <p>Formal <input type="checkbox"/> No</p> <p>Governed by Fed/State Regs <input type="checkbox"/> Yes</p> <p>Governed by Funding Source <input type="checkbox"/> Yes</p>		<p>Eligibility Criteria</p> <p>Income Guidelines <input type="checkbox"/> Yes</p> <p>Means Tested <input type="checkbox"/> No</p> <p>County Resident <input type="checkbox"/> Yes</p> <p>Other <input type="checkbox"/> No</p>	<p>Entry to Service: voluntary</p> <p>Governance: State</p>

Shared Data Warehouse Consideration	
Benefits to the Agency:	better collaboration with the community; fraud detection
Information to share:	Information about children and families
Obstacles:	confidentiality
Ways to Mitigate:	not discussed
Other agency benefits:	broaden awareness of the Center's programs

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	Health Care Services	Mental Health Services - Children's Services
Description:	Provide a variety of mental health services, in partnership with a number of County agencies, to help families keep their children and youth safe at home and out of trouble and in school, at the lowest level of care possible	

Agency Detail		Service Profile:
Mission:	Children's medical mental health services for the County	Out patient clinical services; case management; day treatment services; parent support services; parent advocacy; family interventional and community services; Mary Graham Children's Center; Foster Care Assessment and Treatment
Record Policies		Eligibility Criteria
Informal	<input type="checkbox"/> No	Income Guidelines
Formal	<input type="checkbox"/> No	Means Tested
Governed by Fed/State Regs	<input type="checkbox"/> Yes	County Resident
Governed by Funding Source	<input type="checkbox"/> Yes	Other
		Entry to Service:
		voluntary
		Governance:
		County

Shared Data Warehouse Consideration		
Benefits to the Agency:	families don't have to repeat similar information over and over; ability to share across agencies to deliver better services and save time; improve safety	Information to share:
		information about parents
		Obstacles:
		confidentiality - who is asking and who is revealing information; legal issues; staff training
		Ways to Mitigate:
		universal intake form with agreement/consent release form; provide adequate training to staff on the use of information
Other agency benefits:	same	

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	Probation	Probation
Description:	Probation staff supervises adult and juvenile offenders, support the courts by preparing criminal investigations and enforcing court orders, and aid victims by collecting restitution. The Department also operates Juvenile Hall, Juvenile Camp and the Juvenile Court Work Program, along with a variety of programs for juvenile and adult offenders and at-risk families	

Agency Detail		Service Profile:	Custody and detention programs for delinquent youth, adult probation, presentenced reports for adult offenders, supervision of juvenile offenders, screening and legal processing of detained and non-detained delinquent offenders, preparation of dispositional reports with recommendations to the juvenile court judges, step-parent adoption investigations
Mission:	As a major partner in the justice system, in collaboration with public and private entities, we will increase opportunities through cost effective programming for individuals at risk and offenders to experience success in socially and legally acceptable ways. For those who choose not to make positive changes, we will recommend and impose consequences, thereby holding offenders accountable and protecting public interest and safety.		
Record Policies		Eligibility Criteria	
Informal	<input type="checkbox"/> No	Income Guidelines	<input type="checkbox"/> No
Formal	<input type="checkbox"/> Yes	Means Tested	<input type="checkbox"/> No
Governed by Fed/State Regs	<input type="checkbox"/> Yes	County Resident	<input type="checkbox"/> No
Governed by Funding Source	<input type="checkbox"/> Yes	Other	<input type="checkbox"/> Yes
		Entry to Service:	involuntary
		Governance:	County & Courts

Shared Data Warehouse Consideration	
Benefits to the Agency:	ability to determine if a minor or a parent are involved elsewhere in the County (good background information) which may impact treatment, court recommendation, and the ability to provide better service
Other agency benefits:	more complete treatment plans; more efficient delivery of services
Information to share:	Contact information of other service providers who are providing services/treatment to the minor; case management information
Obstacles:	Confidentiality; misinterpreting another agency's data
Ways to Mitigate:	Involve the courts and the County Counsel

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	Human Services Agency
Description:	Provides State and Federally mandated social services and benefits to citizens of San Joaquin County.

Agency Detail		Service Profile:	CalWORKs - focus on providing cash benefits to families and assist them in their efforts as they prepare themselves for or return to employment; Aging & Adult Services is a customer-focused, accessible, and coordinated service delivery system that protects, supports, and advocates for an aging population, particularly those with disabilities, providing the following services: general relief, community centers, adult protective services, In-Home supportive services, senior employment program, energy crisis intervention, commodity program, linkages program, weatherization program; The Children's Services Division works to protect and care for children who have been abused or neglected, strengthen and preserve families whose children are in danger of abuse or neglect, find permanent homes for children who cannot be returned to their families, support the work of foster parents and other substitute caregivers, and provide leadership in planning, collaborating and integrating culturally-appropriate services for children and families; the Medi-Cal Program determines eligibility for low-income persons in need of medical care; the Food Stamp program is a federally-funded program that helps low-income persons buy supplemental food needed for good health.
Mission:	To lead in the creation and delivery of services that improve the quality of life for our community.		
Record Policies		Eligibility Criteria	
Informal	<input type="checkbox"/> No	Income Guidelines	<input type="checkbox"/> Yes
Formal	<input type="checkbox"/> Yes	Means Tested	<input type="checkbox"/> Yes
Governed by Fed/State Regs	<input type="checkbox"/> Yes	County Resident	<input type="checkbox"/> Yes
Governed by Funding Source	<input type="checkbox"/> Yes	Other	<input type="checkbox"/> Yes
		Entry to Service:	voluntary
		Governance:	County

Shared Data Warehouse Consideration	
Benefits to the Agency:	Better repository of demographic information; better focused program delivery; proactively engage multi-agency teams; better case management decisions; more effective use of resources - minimize duplication of effort; ability to measure progress and outcomes
Information to share:	Broad range of info
Obstacles:	Confidentiality; maintaining the currency of consents to share information; diversity of program related data; resources
Ways to Mitigate:	Establish safeguards for confidentiality; establish scope of sharing; don't make additional work for agencies; provide funding
Other agency benefits:	Same

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	Health Care Services	San Joaquin General Hospital
Description:	A general acute care facility providing a full range of inpatient services including General Medical/Surgical Care, High-Risk Obstetrics and Neonatal Intensive Care, Pediatrics and Acute Physical Medicine and Rehabilitation. In addition to the 236-bed hospital, the medical campus includes multiple facilities dedicated to comprehensive outpatient services including Primary Care, specialty clinics and a Primary Care Walk-In Clinic. The Hospital's Ambulatory Care Network, including 11 provider sites throughout San Joaquin County provides over 200,000 outpatient clinic visits a year.	

Agency Detail		Service Profile: 236 bed hospital																										
Mission:	Dedicated to a philosophy of excellence in providing health services, education and professional training in an integrated system that values quality in life, family interaction, and respect for both clients and employees. The Agency is committed to the delivery of community-oriented, culturally sensitive, and affordable health care throughout San Joaquin County.																											
<table border="1"> <thead> <tr> <th colspan="2">Record Policies</th> <th colspan="2">Eligibility Criteria</th> <th rowspan="2">Entry to Service:</th> <th rowspan="2">Governance:</th> </tr> </thead> <tbody> <tr> <td>Informal</td> <td><input type="checkbox"/> No</td> <td>Income Guidelines</td> <td><input type="checkbox"/> No</td> <td rowspan="2">voluntary</td> <td rowspan="2"></td> </tr> <tr> <td>Formal</td> <td><input type="checkbox"/> No</td> <td>Means Tested</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td>Governed by Fed/State Regs</td> <td><input type="checkbox"/> Yes</td> <td>County Resident</td> <td><input type="checkbox"/> No</td> <td rowspan="2">County</td> <td rowspan="2"></td> </tr> <tr> <td>Governed by Funding Source</td> <td><input type="checkbox"/> Yes</td> <td>Other</td> <td><input type="checkbox"/> No</td> </tr> </tbody> </table>			Record Policies		Eligibility Criteria		Entry to Service:	Governance:	Informal	<input type="checkbox"/> No	Income Guidelines	<input type="checkbox"/> No	voluntary		Formal	<input type="checkbox"/> No	Means Tested	<input type="checkbox"/> No	Governed by Fed/State Regs	<input type="checkbox"/> Yes	County Resident	<input type="checkbox"/> No	County		Governed by Funding Source	<input type="checkbox"/> Yes	Other	<input type="checkbox"/> No
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Governed by Funding Source	<input type="checkbox"/> Yes	Other	<input type="checkbox"/> No																									

Shared Data Warehouse Consideration	
Benefits to the Agency:	<p>better proactive service delivery, i.e., follow-up; better able to provide referral to programs that provide funded services to community members instead of going to the ER; more able to deliver multi-disciplinary treatment because able to identify other services a client is receiving</p>
Other agency benefits:	<p>better and less costly service delivery; more efficient; better referral to other programs</p>
Information to share:	Broad range of data
Obstacles:	HIPAA will have an impact; confidentiality and privacy issues; money and resources; sponsorship to be creative to find resources and to sustain the commitment; community collaboration to reach migrant population
Ways to Mitigate:	leverage what is being accomplished with the Solano Health Care Coalition - sharing of ancillary clinic information; also leverage the Community Access Program which is a coalition of hospitals, faith-based organizations, and community centers, to provide Customer Relationship Management-related capabilities; the hospital is developing a virtual private network under a grant; build a trust factor across agencies and remove the funding competition; achieve consensus on goals and objectives; address concerns citizenship issues that may impact migrant community members

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	Health Care Services	Public Health Care - Vital Stats
Description:	maintains and reports on vital events (birth, death, fetal death), communicable disease and other Maternal and Child Health branch related data	

Agency Detail		Service Profile: n/a																				
Mission:	Registration of vital events and the distribution and dissemination of vital stats, communicable disease and MCH data																					
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Means Tested	<input type="checkbox"/> No																					
County Resident	<input type="checkbox"/> No																					
Other	<input type="checkbox"/> No																					
		Entry to Service: n/a Governance: County																				

Shared Data Warehouse Consideration	
Benefits to the Agency:	Same as benefits to other agencies
Information to share:	Emergency Medical Services data (health data beyond Office of Statewide Health Planning & Development patient discharge data); Pharmacy data (i.e., over the counter medicine for predicting epidemics such as flu); environmental health inspection data; incidents of food poisoning; air pollution
Obstacles:	HIPAA; confidentiality; incompatible data across systems; resources to translate; cooperation between agencies
Ways to Mitigate:	not discussed
Other agency benefits:	ability to access raw, not aggregate data; better program planning

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	San Joaquin Community Data Cooperative
Description:	A community organization providing non-profit research to support the data and research needs of the individuals in San Joaquin County. To assist in the gathering and analyzing data needed to assess the state of the community, identifying needs and strategies for meeting needs, and assessing program outcomes in areas such as Housing, Youth Development, Environment, Health, Jobs and Employment, Family Wellness, Public Safety, Education, and Economic Development - and other areas defining the quality of life in San Joaquin County

Agency Detail		Service Profile:	Research and evaluation organization that (1) archives information on community indicators to support grant writing and strategic planning, and (2) conduct evaluations of outcomes for community organizations
Mission:	SJCDC works cooperatively with other organizations to meet community data needs		
<p>Record Policies</p> <p>Informal <input type="checkbox"/> No</p> <p>Formal <input type="checkbox"/> No</p> <p>Governed by Fed/State Regs <input type="checkbox"/> No</p> <p>Governed by Funding Source <input type="checkbox"/> No</p>		<p>Eligibility Criteria</p> <p>Income Guidelines <input type="checkbox"/> No</p> <p>Means Tested <input type="checkbox"/> No</p> <p>County Resident <input type="checkbox"/> No</p> <p>Other <input type="checkbox"/> No</p>	<p>Entry to Service: n/a</p> <p>Governance: Board of Directors</p>

Shared Data Warehouse Consideration			
Benefits to the Agency:	Easier access to consistent data	Information to share:	Broad range of data
		Obstacles:	Time and money to get data together; lack of understanding of how to use the data currently being collected; differences in how different agencies code and record information; communication channels across agencies
Other agency benefits:	comprehensive case management	Ways to Mitigate:	Attain a commitment from agencies to share information - need standing Memorandums of Understanding; leverage those agencies that are already mandated to report to the state; establish a funding stream; broaden the understanding within agencies of what data is being collected and for what purposes; establish executive sponsorship (they have the political will and the funding); involve the County counsel and other key legal advisors; establish a data "czar" and a governance structure

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	Health Care Services	Public Health Services - Family Health Division
Description:	Delivering programs and services that contribute to the quality of life for everyone in San Joaquin County. These range from public health nursing to Women, Infants, and Children (WIC).	

Agency Detail		Service Profile:	provide a variety of services, case management, speciality medical care, outreach, referral and education to families and children - public health nursing, childhood lead poisoning prevention program; perinatal services, fetal infant mortality review, child passenger safety, adolescent family life, sibling programs, children's medical services, medical therapy, child health and disability prevention; WIC, in-home support services, black infant health
Mission:	To prevent disease and promote good health throughout the community. Specifically, the Family Health Division strives to optimize the health of parent and children in the community.		
Record Policies		Eligibility Criteria	
Informal	<input type="checkbox"/> No	Income Guidelines	<input type="checkbox"/> Yes
Formal	<input type="checkbox"/> No	Means Tested	<input type="checkbox"/> Yes
Governed by Fed/State Regs	<input type="checkbox"/> Yes	County Resident	<input type="checkbox"/> Yes
Governed by Funding Source	<input type="checkbox"/> Yes	Other	<input type="checkbox"/> Yes
		Entry to Service:	voluntary
		Governance:	County

Shared Data Warehouse Consideration	
Benefits to the Agency:	outreach and referral to services beyond children and families, such as transportation and food banks; better able to close the gaps that create barriers to programs and services, i.e., denied eligibility to other health and human service programs; ability to provide better education, i.e., car seats, sudden infant deaths, immunizations - getting messages out to allow other agencies to incorporate into their agency's mission.
Other agency benefits:	Outreach and referral - trigger eligibility and the requirements for services and programs; sharing aggregate data that isn't individually identified
Information to share:	information to help improve health - i.e., mental health, substance abuse, etc; follow-up on referrals; information on other care a client might be receiving
Obstacles:	Confidentiality - most often authority resides outside of the County (i.e. the State); frequently Maternal Child & Adolescent Health (MCAH) clients see services as Child Protective Services (CPS) or checking up on substance abuse, Immigration & Naturalization Services (INS), etc.; resources to participate in a cooperative effort
Ways to Mitigate:	Establish consents to release records (list agencies and the kind of data is released); start small focused on natural alliances that are serving families

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	United Cerebral Palsy
Description:	clinically based program that provides a variety of programs and services to over 500 children and adults every day throughout San Joaquin, Calaveras and Amador Counties.

Agency Detail		Service Profile:	12 separate programs; adult development centers, adult activity center, program without walls, supported employment, supported living; family support/respite services, early intervention, integrated child care program, recreation/community integration, sailors unlimited, challenge rider program; assistive technology
Mission:	To enhance the quality of life for persons with disabilities and to enable them to become more productive, independent and integrated into the community.		
<p>Record Policies</p> <p>Informal <input type="checkbox"/> No</p> <p>Formal <input type="checkbox"/> No</p> <p>Governed by Fed/State Regs <input type="checkbox"/> Yes</p> <p>Governed by Funding Source <input type="checkbox"/> Yes</p>		<p>Eligibility Criteria</p> <p>Income Guidelines <input type="checkbox"/> No</p> <p>Means Tested <input type="checkbox"/> No</p> <p>County Resident <input type="checkbox"/> No</p> <p>Other <input type="checkbox"/> Yes</p>	<p>Entry to Service: voluntary</p> <p>Governance: Board of Directors</p>

Shared Data Warehouse Consideration	
Benefits to the Agency:	Ability to coordinate and integrate services; joint treatment planning; prevent duplication, i.e., homevisits; "plan ahead" service delivery, i.e., kids going into school districts and putting together a transition plan; improve staff safety - understanding history of incidents, risk factors, safety alerts; understanding of resources and referral sources
Other agency benefits:	same
Information to share:	outcome information so can understand UCP's impact on the community
Obstacles:	confidentiality; computer capabilities and literacy across the agencies so that data exchange is more equitable; data ownership; ability to sustain and maintain the data warehouse; training
Ways to Mitigate:	Executive sponsorship; understanding of benefits to each agency - operationalized on a day-to-day basis so that the impact on services and programs is understood

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	Health Plan of San Joaquin
Description:	Publicly sponsored, not-for-profit, managed care health plan designed by and for the people of San Joaquin County. Licensed as a Health Maintenance Organization under the State of California Knox-Keene Act, HPSJ contracts with the State Department of Health Services for care of persons on Medi-Cal in San Joaquin County, as well as the Healthy Families Program regulated by the California Managed Risk Medical Insurance Board.

Agency Detail		Service Profile:	In addition to regular Medi-Cal benefits, HPSJ offers services such as primary care doctors and clinics, member service representatives, bilingual services, health education programs, advice nurse for after-hours medical assistance, quarterly member newsletter, case management, patient advocacy, grievance and complaint resolutions
Mission:	Dedicated to providing access to high quality, culturally sensitive, linguistically appropriate, health care services in conjunction with community providers and in partnership with open-door safety-net providers to improve the health and well being of our community.		
Record Policies		Eligibility Criteria	
Informal	<input type="checkbox"/> No	Income Guidelines	<input type="checkbox"/> Yes
Formal	<input type="checkbox"/> No	Means Tested	<input type="checkbox"/> No
Governed by Fed/State Regs	<input type="checkbox"/> Yes	County Resident	<input type="checkbox"/> Yes
Governed by Funding Source	<input type="checkbox"/> Yes	Other	<input type="checkbox"/> No
		Entry to Service:	voluntary
		Governance:	Commission

Shared Data Warehouse Consideration	
Benefits to the Agency:	referral and eligibility determination; understanding of services and programs available throughout the county; better outreach for healthy family and Medi-Cal programs; shared data base of identifying information to keep data current across agencies
Information to share:	school records (those that qualify federal lunch programs most likely qualify for Healthy Families); immunization registry records; case management information
Obstacles:	Health Information Portability & Accountability Act; confidentiality; reluctance of members to share data; often State data is out of date, but it is the "master" data
Ways to Mitigate:	Leverage CAP - Community Access Program.
Other agency benefits:	same

Appendix A - San Joaquin County Children and Families Commission Agency Profiles

Agency:	Human Services Agency	Community Services Program
Description:	Community Centers provide a wide range of direct and referred services to individuals of all ages within the service area of seven (7) Community Centers. Services are provided on a county-wide basis, and include: Education; Recreation; Emergency Services; Nutrition; Employment; Housing; Health; Income Management; Family-based case management	

Agency Detail		Service Profile: Seniors, adults and children																										
Mission: Customer-focused, accessible, and coordinated service delivery to support members of the community																												
<table border="1"> <thead> <tr> <th colspan="2"><u>Record Policies</u></th> <th colspan="2"><u>Eligibility Criteria</u></th> <th rowspan="2">Entry to Service: voluntary</th> </tr> </thead> <tbody> <tr> <td>Informal</td> <td><input checked="" type="checkbox"/> Yes</td> <td>Income Guidelines</td> <td><input checked="" type="checkbox"/> Yes</td> </tr> <tr> <td>Formal</td> <td><input checked="" type="checkbox"/> No</td> <td>Means Tested</td> <td><input checked="" type="checkbox"/> Yes</td> </tr> <tr> <td>Governed by Fed/State Regs</td> <td><input checked="" type="checkbox"/> No</td> <td>County Resident</td> <td><input checked="" type="checkbox"/> Yes</td> </tr> <tr> <td>Governed by Funding Source</td> <td><input checked="" type="checkbox"/> No</td> <td>Other</td> <td><input checked="" type="checkbox"/> No</td> </tr> <tr> <td colspan="4"></td> <td>Governance: County</td> </tr> </tbody> </table>			<u>Record Policies</u>		<u>Eligibility Criteria</u>		Entry to Service: voluntary	Informal	<input checked="" type="checkbox"/> Yes	Income Guidelines	<input checked="" type="checkbox"/> Yes	Formal	<input checked="" type="checkbox"/> No	Means Tested	<input checked="" type="checkbox"/> Yes	Governed by Fed/State Regs	<input checked="" type="checkbox"/> No	County Resident	<input checked="" type="checkbox"/> Yes	Governed by Funding Source	<input checked="" type="checkbox"/> No	Other	<input checked="" type="checkbox"/> No					Governance: County
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Governed by Funding Source	<input checked="" type="checkbox"/> No	Other	<input checked="" type="checkbox"/> No																									
				Governance: County																								

Shared Data Warehouse Consideration	
Benefits to the Agency:	<p>Similar information collected that schools collect - a universal application would make sense: save on paper work from the client; improved case management; reduce the amount of paper needed to be maintained</p> <p>Information to share: School related info; probation related info</p> <p>Obstacles: confidentiality; resources that can be committed</p> <p>Ways to Mitigate: Establish standards for commonly collected data; ensure confidentiality of data; don't create more paper</p>
Other agency benefits:	Same as benefits to agency

Appendix A - Technology Profiles

Organization: City of Stockton - Parks and Recreation			
System Name	Functionality	Platform	Notes
Class	Recreation software - provides range of automated capabilities to support the various functions of the Department	Other	<div> <input type="checkbox"/> Single User </div> <div> <input checked="" type="checkbox"/> Multi-User </div> <div> <input type="checkbox"/> California State System </div> <div>Vendor provided software (Canada)</div>
Organization: Human Services Agency			
System Name	Functionality	Platform	Notes
CWS/CMS	Child Welfare Support	Mainframe	<div> <input type="checkbox"/> Single User </div> <div> <input checked="" type="checkbox"/> Multi-User </div> <div> <input checked="" type="checkbox"/> California State System </div>
SAWS	Welfare system	Mainframe	<div> <input type="checkbox"/> Single User </div> <div> <input checked="" type="checkbox"/> Multi-User </div> <div> <input checked="" type="checkbox"/> California State System </div>
MEDS	Medi-Cal	Mainframe	<div> <input type="checkbox"/> Single User </div> <div> <input checked="" type="checkbox"/> Multi-User </div> <div> <input checked="" type="checkbox"/> California State System </div>
Mary Graham databases	Access database applications that support operations for Mary Graham Children's home	Network or client/server	<div> <input type="checkbox"/> Single User </div> <div> <input checked="" type="checkbox"/> Multi-User </div> <div> <input type="checkbox"/> California State System </div>

Appendix A - Technology Profiles

Organization: Human Services Agency

System Name	Functionality	Platform	Notes
Oasis	Compliments SAWS - augments SAW's related data with additional data	Mainframe	<div> <input type="checkbox"/> Single User <input checked="" type="checkbox"/> Multi-User <input type="checkbox"/> California State System </div> <p>Slated for re-write. Currently residing on a Unisys that is being retired</p>

Organization: United Cerebral Palsy

System Name	Functionality	Platform	Notes
FileMakerPro	Database of referral information	Network or client/server	<div> <input type="checkbox"/> Single User <input checked="" type="checkbox"/> Multi-User <input type="checkbox"/> California State System </div>

Organization: Health Care Services

System Name	Functionality	Platform	Notes
MEDS	CCS: picks up CMS-Net Medi-Cal related billing data	Mainframe	<div> <input type="checkbox"/> Single User <input checked="" type="checkbox"/> Multi-User <input type="checkbox"/> California State System </div> <p>Frequently there are reconciliation issues between MEDS and CMS-Net</p>
CMS-Net	CCS: statewide system run by CA DHS, which provides some case management functionality	Mainframe	<div> <input type="checkbox"/> Single User <input checked="" type="checkbox"/> Multi-User <input checked="" type="checkbox"/> California State System </div>

Appendix A - Technology Profiles

Organization: Health Care Services			
System Name	Functionality	Platform	Notes
LodeStar	MCH: used to enter and track client specific, statistical and demographic information	Other	<input type="checkbox"/> Single User <input checked="" type="checkbox"/> Multi-User <input checked="" type="checkbox"/> California State System
TIMS	TB database	Mainframe	<input type="checkbox"/> Single User <input checked="" type="checkbox"/> Multi-User <input checked="" type="checkbox"/> California State System
HARTS	AIDS database	Mainframe	<input type="checkbox"/> Single User <input checked="" type="checkbox"/> Multi-User <input checked="" type="checkbox"/> California State System
AVSS	Vital Records: CA DHS system from UC of Santa Barbara - captures birth and death data. The State dials into the county's system on a nightly basis.	Mainframe	<input type="checkbox"/> Single User <input checked="" type="checkbox"/> Multi-User <input checked="" type="checkbox"/> California State System
CAP	San Joaquin General Hospital's "Community Access Program" - Provides CRM-like functionality for a coalition of hospitals, Health Plan of San Joaquin, faith based organizations and community centers. Provides referral information at the point of care	Network or client/server	<input type="checkbox"/> Single User <input checked="" type="checkbox"/> Multi-User <input type="checkbox"/> California State System

Appendix A - Technology Profiles

Organization:	<div>Health Plan of San Joaquin</div>		
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System Name	Functionality	Platform	Notes
Various SQL Server databases and a data warehouse	Web-based Doctor referral	Network or client/server	<input type="checkbox"/> Single User
			<input type="checkbox"/> Multi-User
			<input type="checkbox"/> California State System
Various SQL Server databases and a data warehouse	Web-based claims processing and customer service	Network or client/server	<input type="checkbox"/> Single User
			<input checked="" type="checkbox"/> Multi-User
			<input type="checkbox"/> California State System
Various SQL Server databases and a data warehouse	Web-based claims processing and customer service	Network or client/server	<input type="checkbox"/> Single User
			<input checked="" type="checkbox"/> Multi-User
			<input type="checkbox"/> California State System

Organization:	<div>Family Resource and Referral Center</div>		
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System Name	Functionality	Platform	Notes
CSP	Database of providers	Network or client/server	<input type="checkbox"/> Single User
			<input checked="" type="checkbox"/> Multi-User
			<input type="checkbox"/> California State System

Appendix A - Technology Profiles

Organization:

Family Resource and Referral Center

System Name	Functionality	Platform	Notes
Noho	alternative payment system	Network or client/server	<div><input type="checkbox"/> Single User</div> <div><input checked="" type="checkbox"/> Multi-User</div> <div><input type="checkbox"/> California State System</div>

APPENDIX B – OVERVIEW OF THE STATUS OF CONFIDENTIALITY AS IT RELATES TO A SHARED INFORMATION SYSTEM

The protection of privacy is an evolving area that presents continual challenges to the community of health and human services. Interest in accessing information to reduce duplication, streamline access, promote effective treatment and interventions, and evaluate the effectiveness of publicly supported programs is a legitimate interest shared by providers of services to children and families. That interest of service agencies and public funding sources must be balanced against the privacy rights of individuals and families and the body of statutes and case law protecting those rights.

Current California and Federal law permit the sharing of personal information for the purposes of providing direct and indirect health care services to an individual. Broad avenues of controlled information sharing among multidisciplinary treatment team members are allowed to support local prevention and intervention activities in cases of child abuse and neglect. Certain specified information sharing is also permitted in the areas of juvenile crime and the prevention of juvenile crimes as well as in certain mental health treatment situations. These information-sharing opportunities appear to be currently exercised by San Joaquin County child and family service providers.

The revised Federal HIPAA Privacy Rule, published in August of this year and effective on April 14, 2003, establishes a Federal foundation for the use and disclosure of personal health care information. With few exceptions, the Privacy Rule preempts state law where state law is less rigorous in the protection of health care information privacy or support of individual control over personal health information. The HIPAA Privacy Rule balances the use and disclosure of individually identifiable health information to support the effective delivery of health care services and the operations supporting those services. The balance extended to individuals is the right to access their personal health care information, be informed of the uses and disclosures a health care entity may make of their protected health care information, and, most importantly, to authorize or restrict those uses and disclosures.

Health care information is a substantial component of child and family services. The HIPAA Privacy Rule poses substantial challenges for any storage or maintenance of individually identifiable health care information. The use or disclosure of HIPAA protected personal information must be continually reviewed and authorized by the individual and the chain of responsibility borne by the covered health care entities under HIPAA is extended to all entities, other than the individual and health care providers treating the individual. The right of the individual to control the use and disclosure of their personal health information, and in most instances that of their minor children, and to extend or revoke their authorization for any use or disclosure at any time makes the development of traditional information warehouse approaches outside of the responsible health care entity extremely challenging.

Most states are in the process of assessing the complete impact of the HIPAA Privacy Rule on their laws. The California assessment will be critical in understanding the body of privacy protections that apply to the San Joaquin community of child and family service providers. It is clear that the now Federally supported right of an individual to control their personal health care information and to be informed of how it will be used or disclosed will impact the framework of information sharing between child and family service providers. The form as well as the content of protected health information storage and transmission will need to be considered relative to the Privacy Rule. The terms of the Privacy Rule and its implications for sharing arrangements will need to be well understood and incorporated into the design of any information sharing system for children and family services in San Joaquin County.

IMPLICATIONS OF CURRENT CONFIDENTIALITY LAWS AND REGULATIONS FOR A SHARED DECISION SUPPORT SYSTEM

A summary of the pertinent privacy laws identified and reviewed for this project and the corresponding implications to a shared decision support system, are presented in the following table:

Law	Covered Group	Major Provisions
Health Insurance Portability and Accountability Act of 1996 Privacy of Individually Identifiable Information	Health Care Providers, Health Plans, and Health Care Clearinghouses	<ul style="list-style-type: none"> § Protects the privacy of personal health care information § Restricts the use and disclosure of information § Preempts state law
California Constitution Article 1	Afford each citizen the inalienable right to privacy	<ul style="list-style-type: none"> § Creates right to privacy
California Code Welfare & Institutions Code § 10850	Public Officers and Agencies	<ul style="list-style-type: none"> § Protect the privacy of social services applicants and recipients
California Code § 56	Medical Providers, Health Plans, employers, and third party administrators	<ul style="list-style-type: none"> § Limits disclosure of patient's medical information
California Code Health & Safety Code §12311	Health Care Providers and Health Plans	<ul style="list-style-type: none"> § Grants patients access to health care information § Protects confidentiality of health information
California Information Practices Act	State Officers and Agencies	<ul style="list-style-type: none"> § Protect Privacy of identifying information § Limits disclosure § Allows individual Access to information in most circumstances

Law	Covered Group	Major Provisions
California Public Records Act	State and Local Government	<ul style="list-style-type: none"> Š Requires officials to be mindful of privacy rights Š Provides some privacy Protection Š Public right to obtain certain documents not protected by disclosure by Constitution and other laws
California Business and Professions Code §350-352	Office of Privacy Protections	<ul style="list-style-type: none"> Š Creates Office of Privacy Protection Š Protecting Privacy of consumers
Federal Privacy Act	Federal Government Agencies	<ul style="list-style-type: none"> Š Protects personal information Š No agency may disclose Personal information without consent
Gramm-Leach-Bliley Act	Banks, Insurance Companies, And Brokerage Companies	<ul style="list-style-type: none"> Š Limits persona information and data sharing
California Code Welfare & Institutions Code §18960-18965	Local Child Abuse Prevention and Neglect Services	<ul style="list-style-type: none"> Š Sharing of information between members of local Multidisciplinary Council /Team for purposes of child abuse and neglect intervention Š Allows the establishment of a computerized data base system within county to allow provider agencies to share identifying information
California Code Welfare & Institutions Code §5328	Community Mental Health Services	<ul style="list-style-type: none"> Š Share information for research purposes Š Defining patient rights

The main provisions of the reviewed laws fell into two categories: 1) those protecting the privacy of identifying information and limiting its disclosure; and 2) those providing for the sharing of identifying information. The major thrust of the body of privacy laws reviewed was the establishment of privacy as a right, limitation of disclosure without agreement by the individual, protection of identifying information, and access of the

individual to information maintained about them. Exceptions to the protection, disclosure and access provisions are frequently identified for criminal, public health, and child abuse and neglect investigations or interventions.

The status of many of these laws is uncertain, however, as they are currently under review by the California Office of HIPAA Implementation (CalOHI). CalOHI is responsible for conducting the HIPAA Preemption Analysis, based on the August 14, 2002 revision of the final Privacy Regulations, for the major Statewide privacy laws. As the Preemption analyses are completed they are posted on the CalOHI web site. Senate Bill 1914, signed by Governor Gray Davis on September 11, 2002, provides that any State law determined by CalOHI to be preempted shall not be applicable to the extent of that preemption.

In summary, the status of privacy laws controlling the use and disclosure of individually identifying information is in transition. Prior to finalizing a decision to design a system that maintains and shares identifying information without the express agreement of the individual a review of updated privacy laws should be completed.

KEY PRIVACY LAWS

Listed below are key foundation resources that define the parameters of current confidentiality practices. The laws, case law and requirements found below provide greater detail into the trends and intricacies of privacy and information sharing practices. Direct review of some of these essential requirements, particularly the HIPAA Privacy Rule, should be carefully considered in further development of a shared decision support system.

Health Insurance Portability and Accountability Act of 1996 (HIPAA) Public Law 104-191 Standards for Privacy of Individually Identifiable Health Information [45 CFR Parts 160 and 164]

The Privacy Rule provides the first comprehensive Federal protection for the privacy of health information. The rule protects the privacy of an individual's personal health information, guarantees the individual access to their health care records and extends to the individual greater control over how their health care information is used and disclosed.

The Privacy Rule, with its April 14, 2003 implementation date, attempts to balance supporting the delivery of quality health care services and protecting the privacy of personal health care information. The rule specifies permitted and required uses and disclosures of protected health information and holds health care providers, hospital, health plans, health insurers and health care clearinghouses accountable for the uses and disclosures of personal health care information they create or receive.

Permitted uses and disclosures include the sharing of health care information between health care providers in the provision of services to the individual, the release of necessary information for the payment of those services, and for the operation of the health care entity. Uses and disclosures for other purposes are strictly controlled and, where allowed, restricted to the information necessary to support the allowed function.

The Privacy Rule exercises the preemption of State law where State law conflicts or is less rigorous in the protection of privacy or extension of individual control over their health information. Most States are still in the process of evaluating the impact of the final Privacy Rule as revised in August of this year on their legal privacy structure. A brief overview of the Privacy Rule is provided in the attached releases from the U.S. Department of Health and Human Services.

California Code – Welfare and Institution Code Section 18960-18965

Code in these sections provide for funding in support of local child abuse prevention and intervention efforts and articulate the intent of the Legislature to support local efforts to address child abuse and neglect. Sharing of information to assist local efforts to address child abuse and neglect is supported through the articulated configuration of “Multidisciplinary” approaches, “Multidisciplinary Council” and establishment of “a computerized data base system within that county to allow provider agencies...to share identifying information...”. The sharing of information between members of a Multidisciplinary team for purposes of child abuse and neglect prevention or intervention is specifically allowed in the language of the statute.

California Code – Welfare and Institutions Code Section 5328

Referenced as the Community Mental Health Services Code, this section provides guidance on permitted sharing of information for the purposes of research as well as defining of individual rights within the mental health treatment environment. Guidance on confidentiality and the rights of the individual to protection of privacy are suggested in this extensive section.

California Code – Welfare and Institutions Code Section 10850

Confidentiality of records and identity of public social services applicants and recipients is expressed in this section of the Code. The responsibility of public officers and agencies to protect this privacy of this information is also outlined in the Code.

Hill v. NCAA – 1994

Important precedent setting ruling supporting the Constitutional framework for privacy and outlining the ruling as it relates to the California Constitution and its provision of privacy rights

California Constitution

Article 1 Declaration of Rights

The state Constitution gives each citizen an "inalienable right" to "privacy."

SECTION 1. All people are by nature free and independent and have inalienable rights. Among these are enjoying and defending life and liberty, acquiring, possessing, and protecting property, and pursuing and obtaining safety, happiness, and privacy.

California Confidentiality of Medical Information Act

California Civil Code Section 56, et seq.

This law puts limits on the disclosure of patients' medical information by medical providers, health plans, employers, and third party administrators.

California Health & Safety Code

Section 12311 et seq.

The California Health and Safety Code grants patients access to healthcare information and protects the confidentiality of this information.

California Information Practices Act of 1977

This law applies to state government, however it does not apply to city or county agencies. It expands upon the constitutional guarantee of privacy by providing limits on the collection, management and dissemination of personal information by state agencies.

Article 1. General Provisions and Legislative Findings

1798. This chapter shall be known and may be cited as the Information Practices Act of 1977.

1798.1. The Legislature declares that the right to privacy is a personal and fundamental right protected by Section 1 of Article I of the Constitution of California and by the United States Constitution and that all individuals have a right of privacy in information pertaining to them. The Legislature further makes the following findings:

(a) The right to privacy is being threatened by the indiscriminate collection, maintenance, and dissemination of personal information and the lack of effective laws and legal remedies.

(b) The increasing use of computers and other sophisticated information technology has greatly magnified the potential risk to individual privacy that can occur from the maintenance of personal information.

(c) In order to protect the privacy of individuals, it is necessary that the maintenance and dissemination of personal information be subject to strict limits.

California Business and Professions Code Section 350-352

A state law enacted in 2000 created the Office of Privacy Protection, with the mission of protecting and promoting the privacy rights of California consumers.

350. (a) There is hereby created in the Department of Consumer Affairs an Office of Privacy Protection under the direction of the Director of Consumer Affairs and the Secretary of the State and Consumer Services Agency. The office's purpose shall be protecting the privacy of individuals' personal information in a manner consistent with the California Constitution by identifying consumer problems in the privacy area and facilitating development of fair information practices in adherence with the Information Practices Act of 1977 (Chapter 1 (commencing with Section 1798) of Title 1.8 of Part 4 of Division 3 of the Civil Code).

Government Code 11015.5 Personal Information Collected on the Internet Chapter 429 of Statutes of 1998

This law applies to state government agencies. When collecting personal information electronically, agencies must provide certain notices. Before sharing an individual's information with third parties, agencies must obtain the individual's written consent. 11015.5. (a) On or after July 1, 2001, unless otherwise authorized by the Department of Information Technology pursuant to Executive Order D-3-99, every state agency, including the California State University, that utilizes any method, device, identifier, or other data base application on the Internet to electronically collect personal information, as defined in subdivision (d), regarding any user shall prominently display the following at least one anticipated initial point of communication with a potential user, to be determined by each agency, and in instances when the specified information would be collected:

California Public Records Act California Government Codes Sections 6250-6268

This law applies to state and local government. It gives members of the public a right to obtain certain described kinds of documents that are not protected from disclosure by the Constitution and other laws. It also requires that state and local agencies be "mindful" of the laws that confer privacy rights. This law also provides some specific privacy protections.

Federal Privacy Act of 1974 – 5 U.S. Code 552a

This law applies to the records of federal government executive and regulatory agencies. It requires such agencies to apply basic fair information practices to records containing the personal information of most individuals. The law also states that no federal agency may disclose information without the consent of the person.

Gramm-Leach-Bliley Act

A 1999 federal law that establishes protections against “pretexting” and sets limitations on data sharing for banks, insurance, and brokerage companies.

APPENDIX C - POTENTIAL SOLUTION ARCHITECTURES

This appendix discusses physical and virtual data warehouse architectures, presents benefits and drawbacks of each, and recommends an approach for the Commission.

DATA WAREHOUSE OVERVIEW

Two potential solution architectures exist for addressing the requirements of the Commission: a centralized physical data warehouse or a virtual data warehouse. Each solution has benefits and drawbacks that need to be carefully evaluated in order to determine the solution most appropriate for the Commission in terms of meeting business requirements within time, budget, and scope constraints.

Characteristics of a Physical Data Warehouse

A physical data warehouse stores cleansed and integrated data from several databases in an architected data repository.

The source of the data in a data warehouse usually comes from the operational applications scattered throughout an organization. Through the use of extract-transform-load tools, raw data is extracted from each source, cleansed (or modified) in order to transform the data into a consistent structure, summarized based upon predefined rules, and then loaded into the architected data warehouse repository.

Access to that data is enabled through a variety of business intelligence tools such as Seagate Crystal Reports, Seagate Holos, Cognos Impromptu, Cognos PowerPlay, IQ Objects from Sterling Software Inc., and Oracle's E-Business Suite.

The two primary characteristics of a physical data warehouse are:

- › The source data from several databases is combined or merged, and exists independently of the source databases
- › The data is cleansed in order to provide a consistent set of parameters for analysis and summarized to allow for efficient analysis

These unique characteristics greatly improve the analytical capabilities of an organization because:

- › The independent existence of the data supports analysis without concern for harming operational performance of the business applications. This results because queries are run against the data warehouse, not the source databases.
- › The transformation of the data provides a consistent enterprise-wide data structure within the data warehouse.
- › Queries against the data warehouse are efficient because the data was cleansed and summarized prior to loading into the data warehouse.

However, there are some drawbacks to adopting a physical data warehouse architecture, including:

- › · Designing, building, and evolving a physical data warehouse is an expensive and time-consuming investment based on the environment of the data warehouse
- › · Risk of losing data during the extract, transform, and load steps

Characteristics of a Virtual Data Warehouse

A virtual data warehouse, on the other hand, combines many of the characteristics of a physical data warehouse, but offers some significant benefits. A virtual data warehouse eliminates the need for an independent data repository because the data is accessed directly from the source databases. This approach relies on “middleware” that contains indices of the data in the source databases such that when queries are performed, the indices point to the data to be retrieved.

As a result, a virtual data warehouse is smaller compared to a physical data warehouse, since only indices are stored and not data. The cost of maintaining a significantly smaller data warehouse increases the value proposition of the virtual data warehouse architecture.

Access to the data is handled via the same business intelligence tools as with the physical data warehouse. However, it should be noted that these tools would require more customization to interface with the middleware of a virtual data warehouse as opposed to interfacing with a physical data warehouse. The amount of customization depends on the business requirements and the types of queries that need to be run. Additionally, while the extract-transform-load tools that are part of a physical data warehouse architecture cleanse the data prior to loading it into a separate data warehouse, the business intelligence tools must perform this cleansing at the time a query is run.

There are two major arguments for adopting a virtual data warehouse architecture:

- › · Establishing a virtual data warehouse usually is a less expensive and less time-consuming effort
- › · Because the data is accessed directly from the source databases, the data is “real time”, and poses less of a risk of data being lost during extract, transform, and load

As with the physical data warehouse architecture, there are some limitations with this architecture:

- › · Because the data is accessed directly from the source databases, performance degradation on the operational applications could suffer
- › · More complex queries that involve multiple database joins will take longer to run
- › · Complex analysis that involves trending will be limited with this architecture since the data is not stored independently

Benefits and Drawback Analysis

The following two tables present the benefits and drawbacks of the physical and virtual data warehouse architecture.

Physical Data Warehouse

Benefits	Drawbacks
1. Provides an independent repository of data which poses no performance degradation of the operating applications	1. Significant cost and time investment required to establish and maintain
2. Consistent data structure created which provides for more efficient query response time	2. Risk of losing data during the extract, transform, and load steps
3. Allows user to run complex queries	

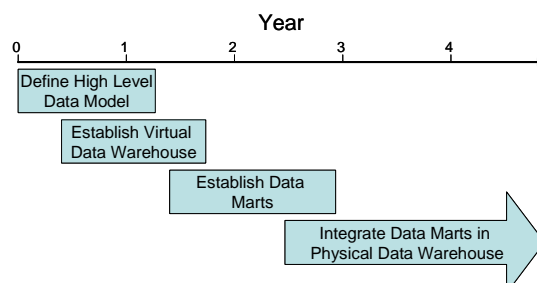
Virtual Data Warehouse

Benefits	Drawbacks
1. Provides for more “real-time” data since the actual data is sourced via middleware	1. Consistent data structure produced when a query is run resulting in less efficient response time
2. Provides for standard, basic queries	2. Can result in reduced performance time of operating systems since the data is accessed directly from the source databases
3. Generally less expensive to establish and maintain	
4. No risk of losing data during extract, transform, and load steps	

Recommended Option

Based upon the above information, the recommended approach is to establish a virtual data warehouse. The primary reason for this recommendation is to be able to provide, in the near term, data warehouse functionality with a minimum amount of cost and effort. Further, pursuing a virtual data warehouse architecture positions the Commission to migrate towards a physical data warehouse over the next several years as data sharing agreements mature, governance structures evolve, and confidentiality issues are addressed.

The graphic to the right suggests a high-level roadmap for the Commission to pursue, beginning with the establishment of a virtual data warehouse and incrementally building towards a physical data warehouse.



Each phase contains incremental and iterative steps that move the Commission forward. Each phase is described at a high level below:

Define High Level Data Model: while establishing a virtual data warehouse represents a more tactical solution, the longer-term strategic solution begins with the definition of a high level data model. In this phase, the Commission will need to look at all data sources and define how it wants to organize and structure the data in order to ultimately extract meaning once a physical data warehouse is established.

Establish Virtual Data Warehouse: this phase allows the Commission to gain some advantages of a data warehouse without the significant investment a physical data warehouse requires. Beginning with a virtual data warehouse positions the Commission to migrate towards a physical data warehouse. This will allow the Commission to begin to establish a virtual data warehouse and to build capacity for a large centralized data warehouse – it allows the Commission to achieve success within a manageable scope before attempting a significantly larger multi-agency implementation effort.

Establish Data Marts: this phase depends on the successful completion of the prior phase “Define High Level Data Model”. This phase begins to build the individual components of a physical data warehouse, without the integration of all the components. In this phase, the Commission combines related data components from the disparate sources into several data marts. Each data mart is independent and searchable, but the data marts are not tied together. This phase represents an interim step between the previous phase (definition of a high level data model) and the subsequent phase (integration of data marts in a physical data warehouse).

Integrate Data Marts in Physical Data Warehouse: in the final phase, the Commission will tie together the data marts created in the prior phase, opening up the full depth of benefits a physical data warehouse can bring.

Relative Cost Comparison

Recently, the Gartner Group¹ estimated relative costs associated with implementing a physical data warehouse that contains 1 terabyte (TB) of raw data and 3TB of disk storage (a single terabyte equals 1,000 billion bytes of data, or roughly equivalent to eleven million copies of this report). The results of that analysis are summarized below as well as comparative estimates of implementing a virtual data warehouse in the same environment. As the table shows, the comparative cost ratio of building a physical data warehouse versus building a virtual data warehouse ranges from approximately 2.6:1 to 4.7:1.

Cost Components	Estimated Physical Data Warehouse	Estimated Virtual Data Warehouse*
IT Staff/Services	\$1,800,000	\$750,000 – 1,200,000
Data Warehouse Platform	\$1,600,000	\$50,000 – 200,000
ETL Platform (Hardware and Software)	\$780,000	\$0
Support and Maintenance	\$580,000	\$200,000 – 400,000
DBMS Software	\$420,000	\$25,000 – 75,000
Miscellaneous Software	\$150,000	\$100,000 – 150,000
Total	\$5,330,000	\$1,125,000 – 2,025,000

* Please note that these estimates are broad industry estimates and do not reflect actual costs. The actual costs of building a virtual data warehouse will be impacted by a variety of factors such as:

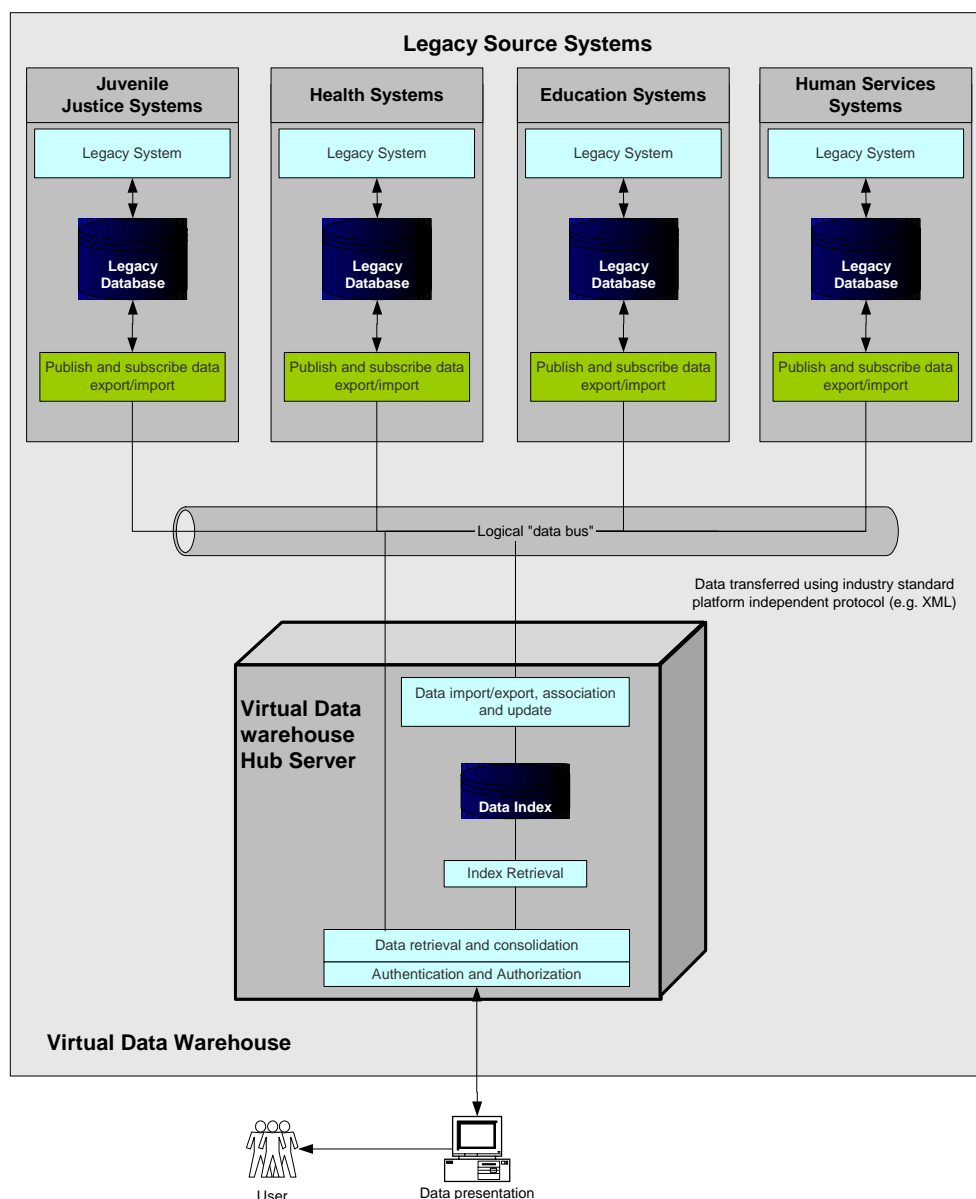
- › **Technical platform:** costs vary depending on the platform chosen, but there is a significant cost differential between a high-end versus a low-end platform.
- › **Complexity of business requirements / functionality:** Increased development time, additional tools, and possibly additional hardware may be required to meet unique business requirements.
- › **Performance requirements:** requirements regarding the response time of a query against the warehouse could impact (1) the choice of a business intelligence tool, (2) the level of effort required to optimize the searches, and (3) hardware requirements to meet increased processing speed.
- › **Integrity of source data:** the less standard the structure of the data that is stored in the disparate source databases, the more time required to optimize queries.
- › **Staff availability / skill set:** if staff are unavailable, cannot be dedicated full-time to this effort, or do not possess the requisite skills, the development timeframe will stretch out.
- › **External constraints:** external constraints, such as legislative mandates, confidentiality requirements, etc., may impact level of effort and selected platform, tools, and software.

¹ Gartner Group, *Data Warehouse Total Cost of Ownership*. 2002 Gartner Inc

RECOMMENDED TECHNICAL APPROACH

Figure C-1 below shows a recommended conceptual technical architecture for the *initial phase* of a shared decision support system, utilizing the concept of a virtual data warehouse. The objective of selecting this approach is to provide data warehouse functionality with the minimum of effort and cost. Applications built on this architecture, the data model, as well as many of the tools, software and staff skills developed and implemented, could and should be, migrated to the centralized data warehouse – investments made in this initial phase would be preserved as the Commission implements the more robust centralized data warehouse capabilities.

Figure C-1



Fundamental to this approach is to not redundantly store all data in the shared decision support system's warehouse. Instead, a minimum of index information is stored and interfaces are created to the source legacy systems. Instead of a single large database for all information, the virtual database acts as a "network of networks".

As indicated by the figure, the core of the virtual data warehouse is a hub server that potentially hosts the following:

- › **Data Index** – a database that contains many records (one for each client/recipient) but minimal fields for each record. These fields will include identifying information (e.g. name) plus pointers (keys) to the full data records on the legacy systems. These pointers will allow users to retrieve additional data directly from the source system if the user has the appropriate security access to those systems.

This approach provides shared access to data that participating agencies collect and use, rather than a large repository of information collected by all. Individual databases are thus accessible via the hub server and data index yet remain independently managed. As a result, there is no need to change existing databases or convert data elements.

- › **Index Retrieval** – an application component that uses the information entered by the user to retrieve matching index records from the Data Index. This component will be designed for high performance retrieval.
- › **Data Retrieval and Consolidation** – an application component that initiates the Index Retrieval and, if the user has appropriate security access, initiate the retrieval of additional data from one or more source systems. Alternatively the index information may be returned and displayed for the user allowing them to use existing legacy system interfaces for retrieving more data. This approach is suitable for the early phases of the implementation because it allows users to find a child and see which source systems have data on that child along with key information. The user can then use the key information to retrieve data from the source system.
- › **Data extract, transform, load, association, and update** – an application component that interfaces with the legacy source systems to transfer and cleanse data. This component will receive data in an industry standard platform independent protocol, such as XML.

Other key components of this technical approach include:

- › **Logical data bus** – This method of data transfer will use an industry standard platform independent protocol, such as XML, to move data between heterogeneous systems. Using this type of protocol avoids closely coupling the Hub server and legacy system, which will allow the connection of additional legacy source systems with the minimum of effort and cost.
- › **Publish and subscribe data** – This component will exist on each legacy source system and will transfer (import/export) data to and from the legacy systems. Data will be transferred in a standard protocol as described above. This component will transform data between this standard protocol and the legacy system data structures.

This component will also identify updates to key data items within the legacy system and publish (export) those changes to the virtual data warehouse hub server. Optionally, this component may subscribe (import) to receive data updates from other systems that are part of the data warehouse.

- › **Security architecture** – this is essential to ensure the confidentiality and privacy of the shared data. Components of the architecture include:
 - J `Firewalls
 - J `Digital certificates
 - J `Access control
 - J `Encryption
 - J `Intrusion detection
 - J `Physical security
- › **Business Intelligence Capabilities** – this is software that provides multiple styles of common business intelligence functionality, including ad hoc query, reporting, charting, multidimensional viewing and analysis.

PRELIMINARY CONCEPTUAL DATA MODEL

This section presents a potential organization of the data within a shared decision support system for the Commission. The model was developed based on requirements identified through interviews, meetings with project participants and a survey distributed to project participants. This discussion presents a potential data model that could be used as the Commission evolves towards the centralized data warehouse architecture and represents structures for consideration as preliminary applications are built for the virtual data warehouse.

The potential conceptual data model for the shared decision support system, discussed below, illustrates the primary entities and key relationships that could be the foundation of the shared decision support system. This model is conceptual in nature, and does not reflect the detailed requirements and design components that will be undertaken during the actual development phase of a shared decision support system implementation project. Rather, the model provides a potential future picture of a shared decision support system for the County.

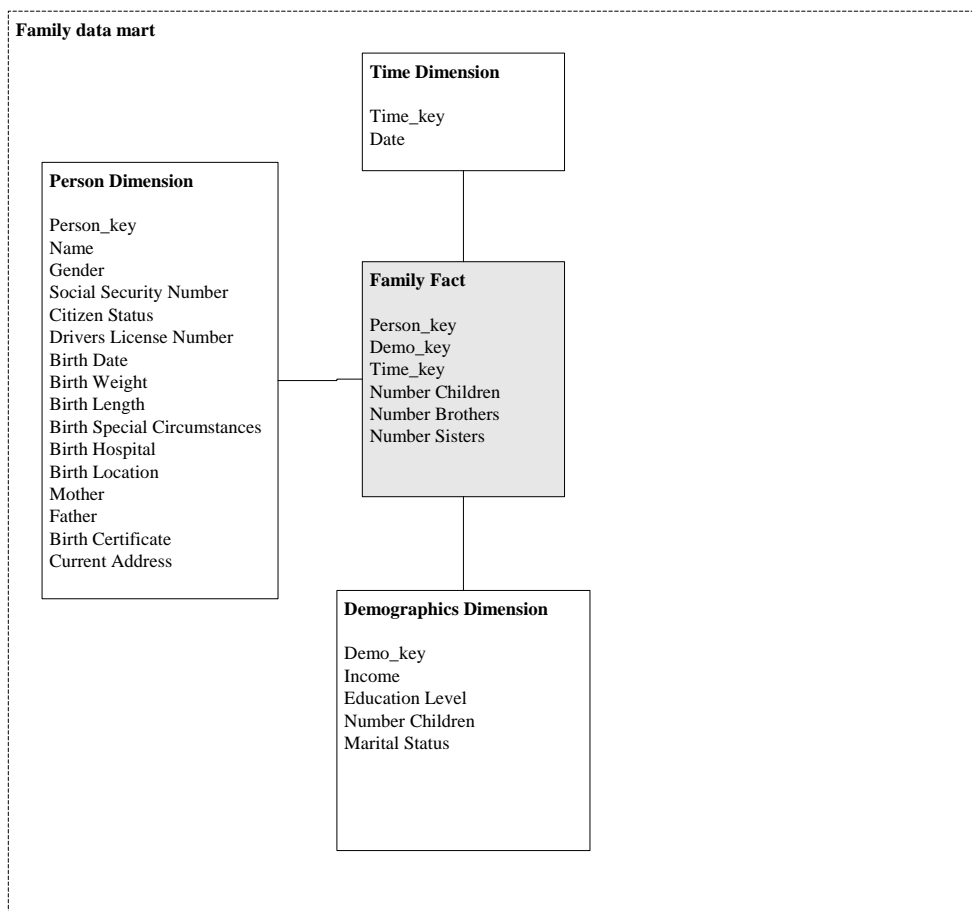
The conceptual model is presented in a series of data marts, which are logical subsets of the complete data model. A data mart is a complete “pie-wedge” of the overall data model pie. In essence, a database is made up of the union of all of its data marts. The data marts that are presented are as follows:

- › Family
- › Employment
- › Program Participation
- › Financial
- › Health
- › Disenrollment

In the various data marts presented below, the boxes indicate broad categories of relevant data about a set of things (people, places, events, etc.) that have some common bond such that they should be logically grouped together. The lines show the relationship between the different categories of data.

Family data mart – this data mart provides information about the number and type of family members within a family. At the lowest level this data mart contains the number of children, brothers, and sisters for a person. This data mart could allow (with appropriate security and authorization) aggregation of data by any of the fields in the tables, for example:

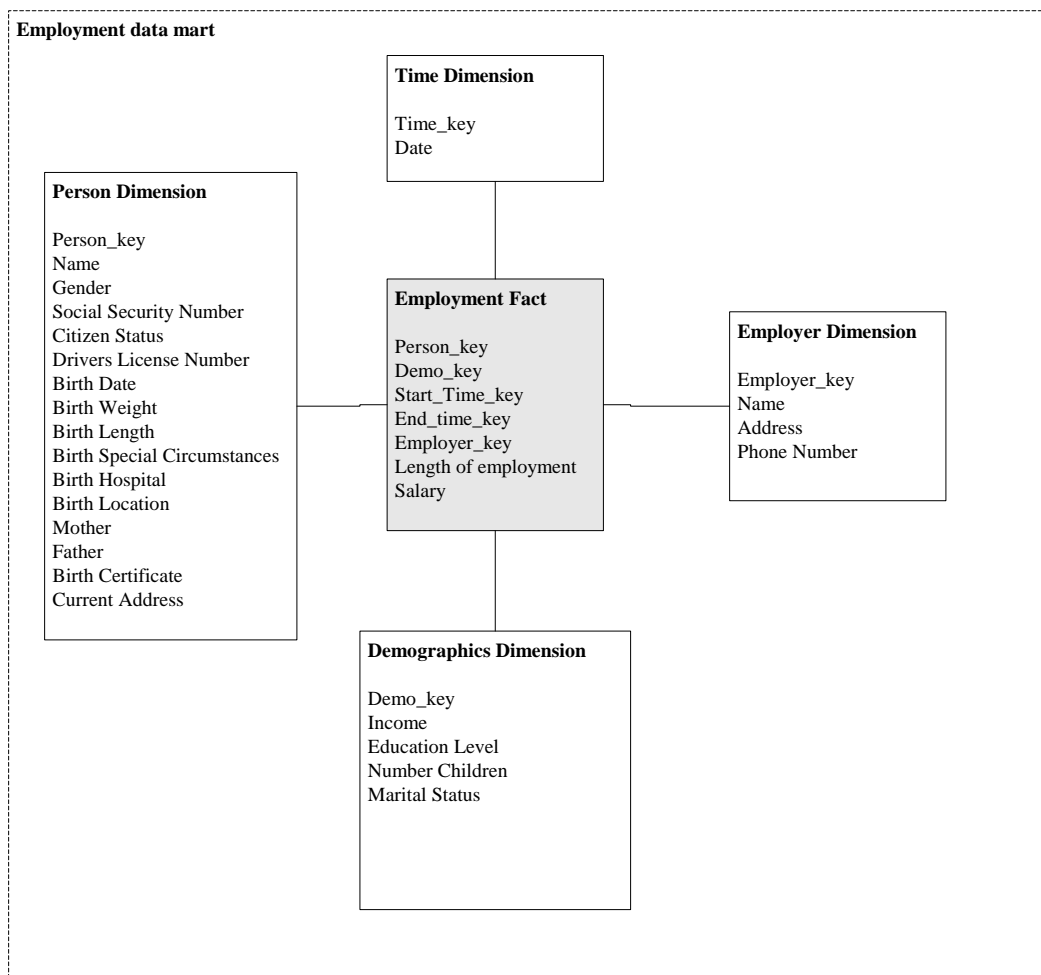
- J ` Average number of children
- J ` Average number of children by zip
- J ` Average total number of family members by zip



Employment data mart – this data mart provides information about the employment of a client/customer: dates of employment, employers, and salaries, etc. At the lowest level of detail this data mart contains data for each job a person has held. For example, if a

client has held five jobs with five different employers there will be five records in the Employment Fact Table (one for each job) along with one record for each employer in the Employer dimension, and one record for the client in the Person and Demographic dimensions. This data mart could allow (with appropriate security and authorization) employment data to be aggregated at various levels and in various ways using any of the fields in the tables, examples include:

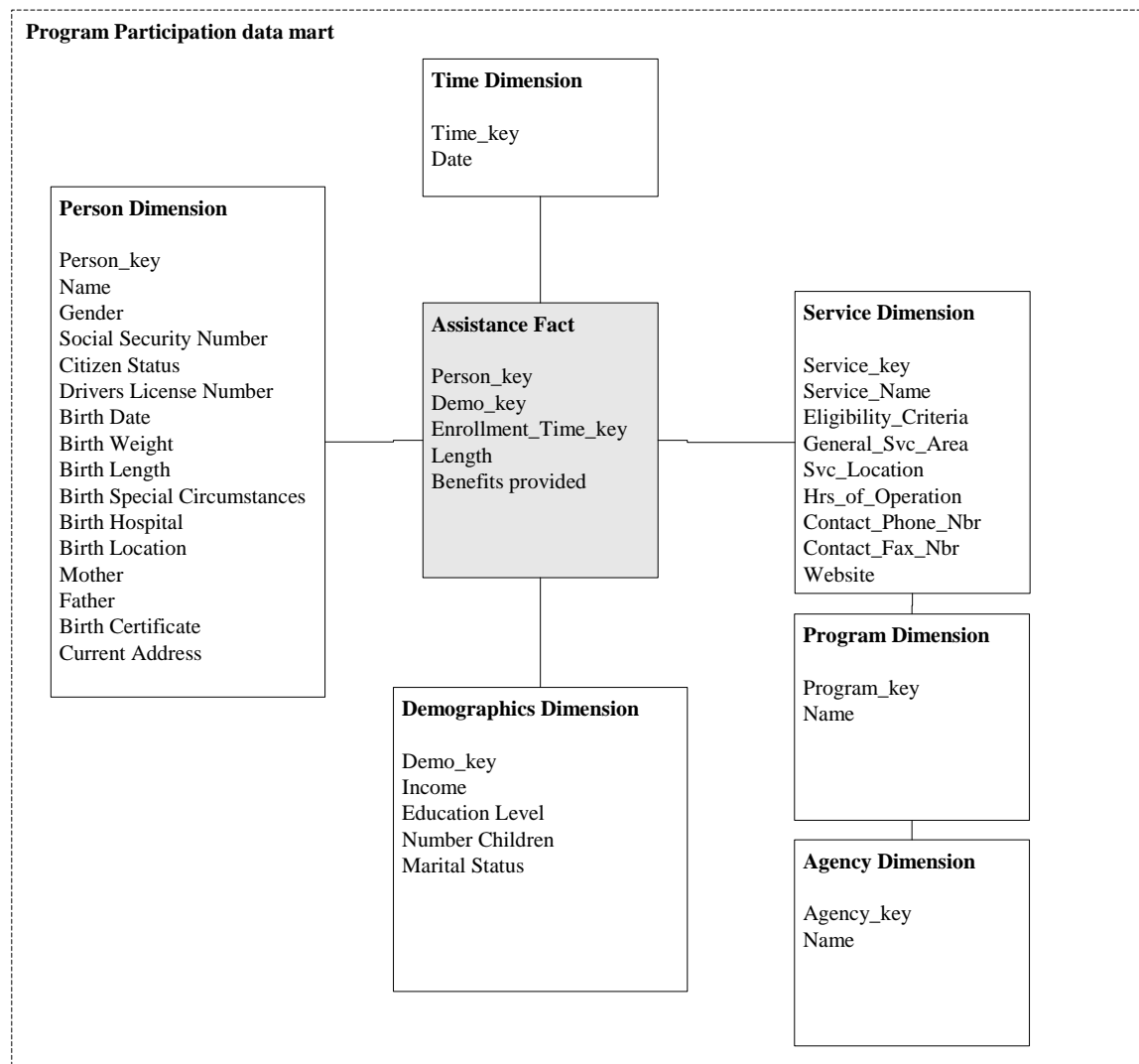
- J ` Average salary
- J ` Average salary by zip code
- J ` Average salary by gender
- J ` Average length of employment
- J ` Average salary by year
- J ` Average salary by year by zip
- J ` Lowest and highest salary by zip



Program Participation data mart - this data mart provides information about enrollment within the various programs offered by the children and family agencies of the County. The data mart includes when enrolled, how long, and benefits provided. At the lowest level of detail, this data mart contains a record for each program/service

enrolled in by a person (it will contain multiple records if they were enrolled multiple times). This data mart could allow (with appropriate security and authorization) aggregation of data by any of the fields in the tables, for example:

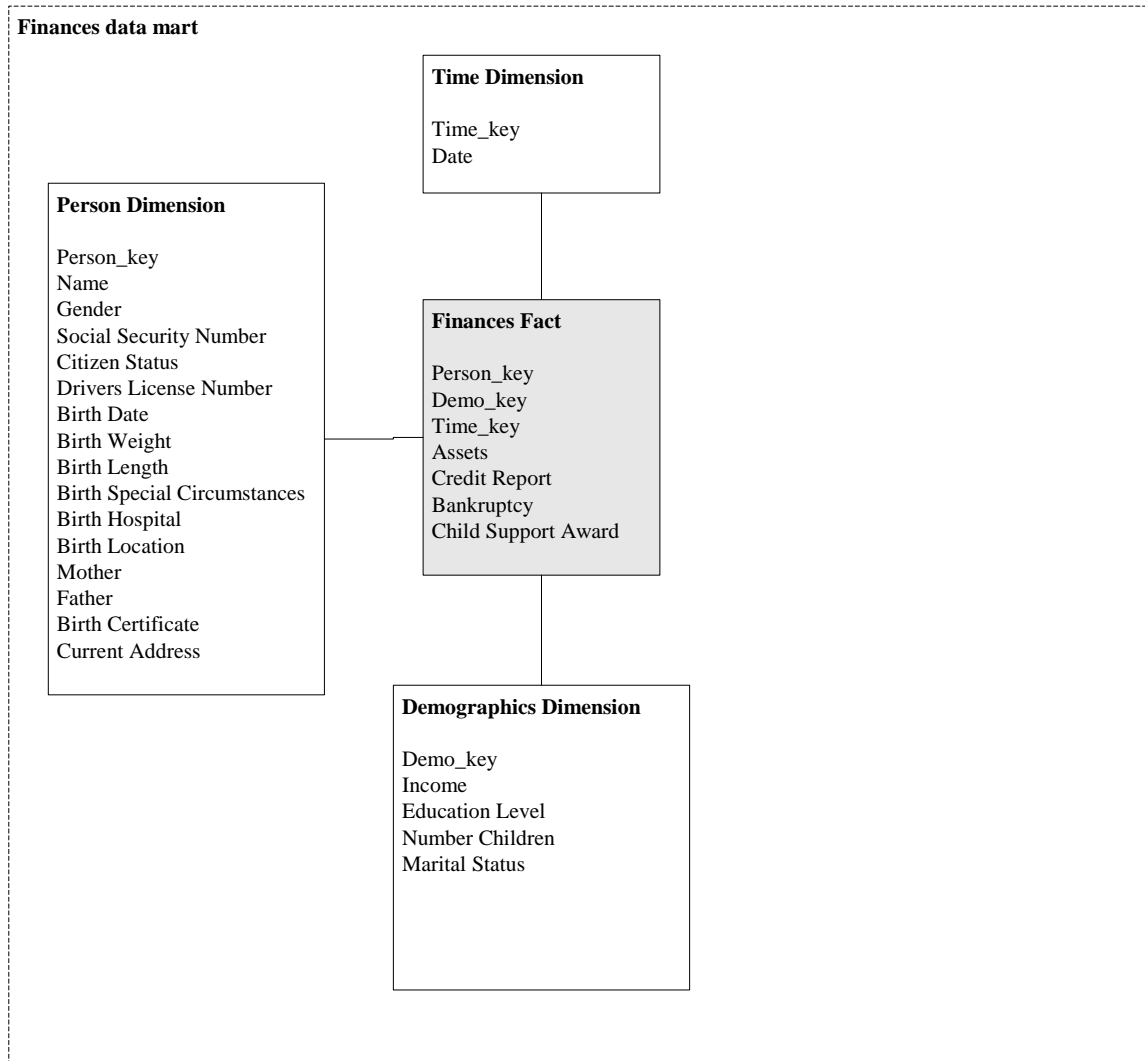
- J ` Average length of enrollment by program
- J ` Average length of enrollment by program by zip
- J ` Average length of enrollment by program by gender
- J ` Average length of enrollment by program by age



Financial data mart - this data mart provides information about a client's related financial information required to qualify or enroll in a program or service. At the lowest level of detail, this data mart contains a record for each person. This data mart could allow (with appropriate security and authorization) aggregation of data by any of the fields in the tables, for example:

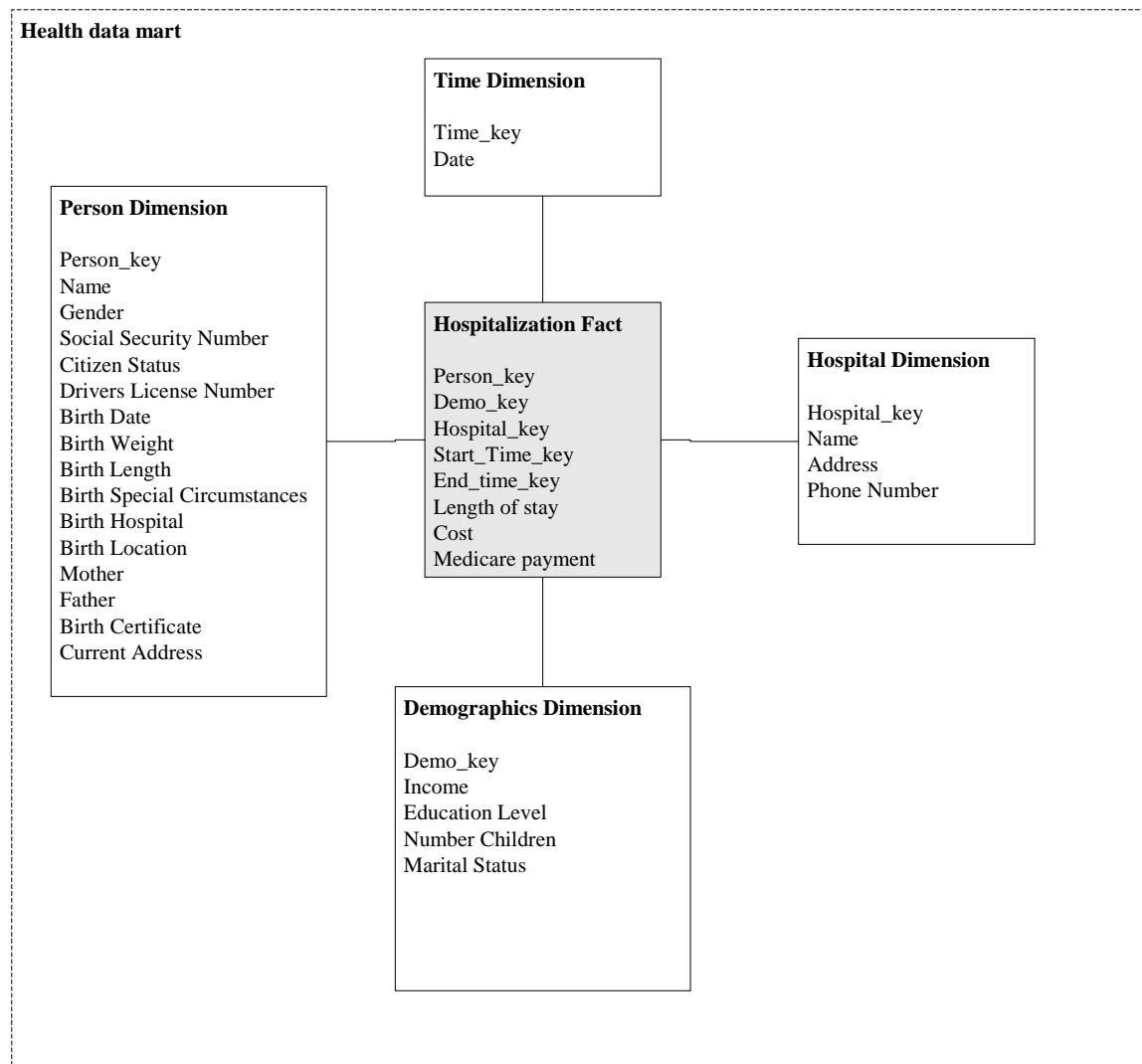
- J ` Average child support award
- J ` Average child support award by zip

- J ` Number of people with child support awards by zip
- J ` Number of bankruptcies by zip



Health data mart – this data mart provides information about the health treatment/care. For instance, at the lowest level of detail this data mart contains data for each hospital visit by a person. This data mart could allow (based on security and authorization) aggregation of data by any of the fields in the tables, for example:

- J ` Average length of stay by age
- J ` Average cost of stay
- J ` Average cost of stay by age
- J ` Average cost of stay by zip



Disenrollment data mart - this data mart provides information about a person's disenrollment from a program or service. At the lowest level of detail, this data mart contains a record for each dis-enrollment for each person. This data mart could allow (based on security and authorization) aggregation of data by any of the fields in the dimension tables, for example:

- J `Total disenrollements by zip
- J `Total disenrollements by year
- J `Total disenrollements by year by zip
- J `Total disenrollements by Reason

